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An Address
ON
THE NATION AND THE TROPICS.

Delivered at the London School of Tropical Medicine on Oct. 26th, 1909,

BY WILLIAM OSLER, M.D., F.R.S.,
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[SPECIALLY REPORTED IN FULL FOR THE LANCET.]

GENTLEMEN,—The evolution of our present hopeful condition, like that of organic life, looks uniform; but examined more closely this uniformity disappears in a deeper parallel—the sudden intrusion of apparently new forces which have changed the broad surface of humanity quite as profoundly as did, for example, the glacial period the biology of the northern portions of the globe. Three outstanding events have loosened as a spring the pent-up energies of the modern world—the Greek civilisation, the geographic renaissance of the sixteenth century, and the scientific awakening of the nineteenth century. Greek thought not only stripped man for the race, but Greek methods gave him correct principles of training and clear ideas of the nature of the race to be run. Collectively we follow to-day occidental, Greek ideals, and what makes Western civilisation such a tissue of inconsistencies is the injection, Anno Domini of an oriental morality which controls the individual, while powerless to sway the nations. The geographic renaissance has given to the progressive peoples of Europe a new pinnacle of outlook. To the lust of conquest succeeded the lust of commerce, to be followed by the burning zeal to evangelise; and then a steady, sober plan of settlement which has encircled the earth with new nations. And the third great outburst of energy is the scientific awakening of the nineteenth century, which has not only placed in his hands a heretofore undreamed of capacity for material progress, but has given to man such a control of nature that at a stroke is removed the chief obstacle to a world-wide dominion.

The expansion of modern Europe, the completion of which was one of the great features of the latter part of the nineteenth century, has opened a broader vista than ever before looked on by humanity. The ascent of man began in the tropics, where the conditions of nature made life easy, and at least four of the six great ancient civilisations—the Egyptian, Phœnician, Assyrian, and Babylonian—rose and fell within, or close to the tropics. Once only in modern times has a tropical people, reaching a high grade of civilisation, spread far and wide, in the magic outburst with which the Arabians shook the very foundations of Christianity. In the last four centuries the expansion of Europe has changed the map of the world, and in conflict with the old civilisations in North and South America, and by wholesale appropriations in Asia and Africa, the children of Japhet have gone forth with the Bible in one hand and the sword in the other conquering and to conquer, taking the uttermost parts of the earth for their possession. In the course of this period they have partitioned among them one hemisphere, two continents, and a large part of a third. A glance at the map shows that as a result of this expansion many independent nations have sprung up; but a very large portion of the conquered earth is still in control of Europe, and linked to it by strong political ties. Practically these countries come in two divisions—the self-governing colonies and the dependencies. A majority of the former are in the temperate regions, and have reached a stage of maturity, and one of them has become the great nation whose representative honours us to-day with his presence.

Scarcely less important, and vastly greater in extent and population, are the dependencies, nearly all of which fall within the tropics, and with their destiny the problem of the twentieth century is bound up. If we take two lines, 30 degrees north latitude and 30 degrees south latitude, the part of the earth between represents the great heat belt of the tropics, within which lie the whole of Africa, Arabia, India, Burma, the Malay States, Polynesia, the Philippines, Mexico, and the Central American Republics, with the West Indies. Mr. H. O. Becket of the Department of Geography, Oxford, has prepared for me four maps (which I have much pleasure in presenting to the school) showing at a glance the tropical possessions of the four Western nations—England, France, Germany, and the United States. The following table gives the figures in population and in square miles of territory:—

—	Tropical territory in—				Total tropical.	Home country.
	America.	Africa.	Asia.	Pacific.		
France ...	440,000	17,700,000	18,500,000	80,000	36,720,000	39,000,000
	35,000	4,032,000	310,000	9,000	4,386,000	207,000
German Empire	*Nil.*	11,700,000	*Nil.*	400,000	12,100,000	60,000,000
		931,500		96,000	1,027,500	209,000
United Kingdom	2,000,000	30,500,000	296,600,000	1,150,000	330,250,000	44,500,000
	109,000	1,600,000	1,900,000	1,400,000	5,009,000	121,000
United States ...	305,000	*Nil.*	*Nil.*	7,707,000	8,012,000	76,000,000
	47,500			134,500	182,000	2,970,000

Heavy figures give population.
Lighter figures give area (in square miles).

The tropical world has been appropriated, and this country has a burden of tropical population six times greater than the other three combined. A few comparatively small districts remain either independent, or as yet unexplored, as Abyssinia and parts of Polynesia.

THE DOUBLE BURDEN OF THE WHITE MAN.

It is no light burden for the white man to administer this vast trust. It is, indeed, a heavy task, but the responsibility of Empire has been the making of the race. In dealing with subject nations there are only two problems of the first rank—order and health. The first of these may be said to be a speciality of the Anglo-Saxon. Scarlet sins may be laid at his door—there are many pages in the story of his world-exodus which we would fain blot out; too often he has gone forth in the spirit of the Old Testament crying "The sword of the Lord and Gideon." But heap in one pan of the balance all the grievous tragedies of America and of Australasia, the wholesale destruction of native races, all the bloodshed of India, and the calamities of South Africa, and in the other pan put just the one little word "order," which has everywhere followed the flag, and it alone makes the other kick the beam. Everywhere this has been the special and most successful feature of British rule. We are entering upon a phase in which the natural results of this stable government upon the subject races are shown. Just as at home the fate of the rich is indissolubly bound up with that of the poor, so in the dependencies the fate of the strong and the weak cannot be dissevered; and whether he will bear or whether he will forbear, the brother's keeper doctrine of the strong, helpful brother must be preached to the white man. The responsibility is upon the nation to maintain certain standards which our civilisation recognises as indispensable on the supposition that our Western ideas are right; but we have to meet the fact that the ways of the natives are not our ways, nor their thoughts our thoughts; and yet we place them in such a position that sooner or later they become joint heritors with us of certain civil and social traditions and aspirations. It is in India and the Philippines that the political problem looms large, but no matter how large or how formidable it must not be allowed to interfere with the great primary function of the Anglo-Saxon as a policeman. There may be a doubt as to the grafting of our manners, and still greater doubt as to the possibility of inculcating our morals; a doubt also as to the wisdom of trying everywhere to force upon them our religion; but you will, I think, agree that the second great function of the nation is to give to the inhabitants of the dependencies, Europeans or natives, good health—a freedom from plague, pestilence, and famine. And this brings me to the main subject of my address, the control of the tropics by sanitation.

THE NEW CRUSADE.

When the historian gets far enough away from the nineteenth century to see it as a whole, perhaps one feature above all others will attract his attention, since amid all the movements of that wonderful period it has been most directly

beneficent to the race. Political, social, religious, intellectual revolutions will demand his comments, but if I am not greatly mistaken the movement upon which he will dwell longest will be the introduction of modern sanitation. It is not possible to ascribe the credit of this to any one man or group of men in any country. The movement arose with the recognition of the true nature of the large division of what we call the infectious diseases, which are responsible for more than one half of the deaths in the community. This country may claim the merit of having first carried into practical effect sanitary laws, which have resulted in a steadily diminishing mortality from this class. The cholera epidemic in the "fifties" did a great deal to arouse public opinion, and that remarkable group of men, comprising Chadwick, Budd, Murchison, Simon, Acland, Buchanan, Russell, and B. W. Richardson, and among laymen Charles Kingsley, put practical sanitation on a scientific basis. They had grasped the conception that the battle had to be fought against a living contagion, which found in poverty, filth, and wretched homes the conditions for its existence; and an immense impetus was given when in rapid succession, in the last third of the century, the germs of a large number of the most serious of epidemic diseases were discovered. The sum total has been the abolition of many infections, such as typhus fever; an extraordinary reduction in others, as in typhoid; the almost complete abolition of post-operative sepsis through Lister's work; and the perfecting of a sanitary organisation which gives confidence to the public and prevents commercial panics. Think of the shudder that would have passed over this country 30 years ago at the announcement of an outbreak of cholera in Rotterdam, yet in August last the presence of ten cases in that city was simply commented upon, but none felt the slightest anxiety. Altogether we may say that the home defences are in a fairly satisfactory condition, but there remain the complete victory over typhoid fever, the progressive reduction in the mortality from tuberculosis, and the limitation of the still very fatal diseases of childhood, and we have not arranged yet even a truce with that subtle and very progressive foe, cancer.

This flowery and flattering picture is true of the little island which forms the centre, and it is true, fortunately, to a great extent of the Confederated States, but when we take a glance at the empire at large, at the huge area which we see represented on the map, we find a totally different state of affairs. Out of the total population 60,000,000 perhaps live under good and constantly improving sanitary conditions, but of the vast dependencies with their teeming millions there is a very different story to be told. With an awakening of an interest in the Tropics men have learned to recognise the primary importance of good health and the possibility of mitigating conditions which favour the persistence of widespread and destructive epidemics. Of tropical diseases of the first importance may be mentioned malaria, plague, cholera, yellow fever, dysentery, beri-beri, and relapsing fever, and certain parasitic disorders as ankylostomiasis. They vary in their prevalence in different localities, but together they make the Tropics' great enemies. It is interesting to note that of all but one we know the germs, the conditions of their growth, and in nearly all the mode of propagation. Quietly but surely this great work has been accomplished by a group of patient investigators, many of whom have sacrificed health and life in their endeavours. Let us pause a moment to pay a tribute of gratitude to these saviours of humanity who have made the new mission possible—to Pasteur, to Koch, to Laveran, to Reed and his fellows, to Ross, Manson, and Bruce. And let us not forget that they built upon foundations laid by thousands of silent workers whose names we have forgotten. A great literature exists in the contributions published during the past century by the members of the medical department of the old East India Company service and of the army in both the East and West Indies. I should like to awaken in your memories the names of Lind, Annesley, Moorehead, Pringle, Ballingall, MacGregor, Hillary, Waring, Cheevers, Parkes, Malcolmson, and Fayrer. Many did work of the very first quality with very little recognition at home or abroad. I sometimes think of the pathetic letters received from that splendid investigator Vandyke Carter of Bombay, the first in India to confirm the modern studies upon malaria in the early days when we were both working at the subject, how he spoke of his isolation, the difficulties under which he struggled, the impossibility of arousing the apathy of the officials, and the scepticism as to the utility of science.

No one has expressed more deeply this sentiment of lonely isolation in the Tropics than Ronald Ross in his poem *In Exile*:—

> "Long, long the barren years;
> Long, long, O God, hast Thou
> Appointed for our tears
> This term of exile."

Few have been able to sing with him the pæan of victory when he discovered the mode of dissemination of malaria through the mosquito—

> "Seeking His secret deeds
> With tears and toiling breath,
> I find thy cunning seeds,
> O million-murdering death."

And the pathway of victory is strewn with the bodies of men who have cheerfully laid down their lives in the search for the secrets of these deadly diseases—true martyrs of science, such as were Myers, my friend and former assistant, Lazear (both of whom died from yellow fever), Dutton, and young Manson. Of them may fitly be sung in words from the noblest of all American poems, that in which Lowell pays a tribute to the young Harvard men who fell in the war of secession:—

> "Many in sad faith sought for her,
> Many with crossed hands sighed for her;
> But these, our brothers, fought for her,
> At life's dear peril wrought for her,
> So loved her that they died for her."

As a result of 25 years' work we have an extraordinary volume of knowledge concerning the causes of most of the tropical diseases and the nature of the measures required for their prevention. And yet when one considers the existing conditions it is safe to say that our task has scarcely begun. When we read in THE LANCET of Oct. 23rd that during the last four months of 1908 400,000 deaths from fever were reported in the Punjab, and that it is estimated that a fourth of the total population of the province suffered from malaria, one realises the truth of such a statement. And yet the situation is one full of encouragement, particularly in connexion with the practical prevention of insect-borne diseases For centuries there has been a popular belief in the transmission of disease through mosquitoes and flies, and in the middle of the nineteenth century that remarkable clinician and anthropologist, Nott of Mobile, suggested the association between the mosquito and yellow fever and malaria. A more scientific presentation of the question was made by the French physician Beauperthuy, an enthusiastic student of the epidemics in the Spanish Main. But the first clear demonstration of a mosquito-borne disease was made by Manson in the case of filariasis. The whole story is told in a fascinating way in Sir Rubert Boyce's just issued work, "The Mosquito or Man: the Conquest of the Tropical World." The discovery by Laveran in 1880 of the parasite of malaria, the demonstration by Ross in 1897 of the part played by the mosquito in its transmission, have a greater significance for a greater number of persons than any single observations ever made in connexion with disease. Then followed in 1900 the demonstration by the American Army Commissioners, Reed, Carroll, Agramonte, and Lazear of the transmission of yellow fever by the mosquito. Many scientific discoveries have afforded brilliant illustrations of the course to be followed in a modern research; but one is at a loss to know which to admire most, the extraordinary accuracy and precision of the experiments, or the heroism of the men, officers and rank-and-file, who carried them out, all the time playing with death and some of them paying the penalty. The conditions were favourable to the demonstration on a large scale of the practical value of the discovery. It was a fortunate thing that the head of the American occupation of Cuba was General Leonard Wood, himself a well-trained physician, and deeply interested in problems of sanitation. Backed by the military arm it took Dr. Gorgas and his colleagues nine months to clear Havana, which had been for centuries a stronghold of the disease. With the exception of a slight outbreak after the withdrawal of the American troops the city has remained free from yellow fever. What is even more important, in the great centres in South America, particularly in Rio, similar measures have been carried out with signal success; indeed, we may say that the possibility is in sight of the extermination of one of the world's greatest plagues, which has cost

millions of lives and has at intervals interrupted the commerce of half a continent.

I mentioned yellow fever first because its history illustrates the importance of effective organisation. It has been an added merit to Dr. Ross's great merit that, like the fiery Peter of old, he has preached a ceaseless crusade in favour of organised effort against malaria. Everyone knows that the control of the Tropics is bound up with this disease, and it is a problem the practical solution of which will tax to the uttermost the organising capacity of the Anglo-Saxon. A singularly happy combination of circumstances has demonstrated on a large scale the efficiency of modern sanitary measures in one of the world's greatest death-traps.

THE STORY OF THE PANAMA CANAL.

In a general way the story of the Panama Canal is well known, but as I do not think an up-to-date version has ever been presented to the British public I propose to tell you in a few words a marvellous history of sanitary organisation. The narrow Isthmus, separating the two great oceans and joining the two great continents, has borne for four centuries an evil repute as the white man's grave. Silent upon the peak of Darien stout Cortez with eagle eye gazed at the Pacific. As early as 1520 Saavedra proposed to cut a canal through the Isthmus. There the first city was founded in the new world which still bears the name Panama. Spaniards, English, and French fought along its coasts; to it the founder of the Bank of England took his ill-fated colony; Raleigh, Drake, Morgan the buccaneer, and scores of adventurers seeking gold, found in fever an enemy stronger than the Spaniard. For years the plague-stricken Isthmus was abandoned to the negroes and the half breeds, until in 1849, stimulated by the gold fever of California, a railway was begun by the American engineers, Totten and Trautwine, and completed in 1855, a railway every tie of which cost the life of a man.

The dream of navigators and practical engineers was taken in hand by Ferdinand de Lesseps in January, 1881. For 23 weary years the French company struggled against financial difficulties at home and insuperable sanitary obstacles on the Isthmus. Little did the 19 Frenchmen, who reached Panama in January, 1881, think that the secret of success lay 7000 miles away with a young countryman of theirs, an army surgeon in Algiers called Laveran, unknown, solitary, unrecognised, who was quietly studying malaria in a military hospital in Algiers, doing work which alone could make possible the completion of their plans.

From the outset the chief obstacle proved to be the fevers. It is a sad record. Within seven months from beginning work the mortality had risen to the rate of 119 per 1000 for the month. As the number of employees rose, so in a certain measure did the death-rate, which reached the maximum in the month of September, 1885, in the appalling figures of 176·97 deaths per 1000. This would appear to be about the maximum death-rate of the British army in the West Indies in the nineteenth century. The average in Jamaica for the 20 years ending 1836 was 101 per 1000. At several stations it reached as high as 178 per 1000. But this is nothing to some of the seventeenth century records, which show that a regiment of 800 lost two-thirds of its strength in a fortnight.[1] The maximum number of employees was in 1887 and 1888 from 15,000 to nearly 18,000. The maximum mortality in these two years was 72·48 per 1000. Then for a period of eight or ten years the work lagged, and the total number of men employed annually was for many years under 1000; a large proportion coloured and the whites chiefly immunes. Only once in these years did the mortality rise above 133 per 1000, which was in the month of January, 1903, and this seems largely to have been due to an epidemic of small-pox. Yellow fever, malaria, and dysentery were responsible for the large proportion of deaths. From 1890 yellow fever practically disappeared, with the exception of a small epidemic in 1897. During the French occupation 6283 of the employees died in hospital, thousands died along the course of the canal; many thousands were damaged permanently in health, or died after their return to their homes. In Philadelphia in 1888 I had a telegram from a contractor asking what accommodation could be given in the hospitals for two shiploads of workmen returning from the canal, the great majority of them ill with malaria and dysentery. The mortality had been very high as yellow fever had been raging. One of the ships came to Philadelphia and I do not remember ever to have seen a more appalling sight when these victims of chronic dysentery and malaria were landed; many were anæmic, others worn to the bone, and not a man of them had escaped serious damage. Not 50 per cent. of those who had gone out returned, and a very large proportion of those who landed in New York and Philadelphia died subsequently.

When in 1904 the United States undertook to complete the canal everyone felt that the success or failure was largely a matter of sanitary control. The necessary knowledge existed, but under the circumstances could it be made effective? Many were doubtful. Fortunately, there was at the time in the United States army a man who had already served an apprenticeship in Cuba, and to whom more than to anyone else was due the disappearance of yellow fever from that island. I know that to a man the profession in the United States felt that could Dr. Gorgas be given full control of the sanitary affairs of the Panama zone the health problem, which meant the canal problem, could be solved. There was at first a serious difficulty relating to the necessary administrative control by a sanitary officer. In an interview which Dr. Welch and I had with President Roosevelt he keenly felt this difficulty and promised to do his best to have it rectified. It is an open secret that at first, as was perhaps only natural, matters did not go very smoothly, and it took a year or more to get properly organised. Yellow fever recurred on the Isthmus in 1904 and in the early part of 1905. It was really a colossal task in itself to undertake the cleaning of the city of Panama, which had been for centuries a pest-house, and the mortality of which, even after the American occupation, reached one month as high as 71 per 1000 living. There have been a great many brilliant illustrations of the practical application of science in preserving the health of a community and in saving life, but it is safe to say, considering the circumstances, the past history, and the extraordinary difficulties to be overcome, the work accomplished by the Isthmian Canal Commission is unique. 1905 largely dealt with organisation, yellow fever was got rid of, and at the end of the year the total mortality among the whites had fallen to 8 per 1000, but among the blacks it was still high, 44. For three years with a progressively increasing staff which had risen to above 40,000, of whom more than 12,000 were white, the death-rate progressively fell.

Of the six important tropical diseases, plague, which reached the Isthmus one year, was quickly held in check. Yellow fever, the most dreaded of them all, has not been present for three years. Beri-beri, which in 1906 caused 68 deaths, in 1908 caused only 38. The hook-worm disease, ankylostomiasis, has steadily decreased. From the very outset malaria has been taken as the measure of sanitary efficiency. Throughout the French occupation it was the chief enemy to be considered, not only because of its fatality, but on account of the prolonged incapacity following infection. In 1906 out of every 1000 employees there were admitted to the hospital, from malaria 821; in 1907, 424; and in 1908, 282. The mortality from the disease has fallen from 233 in 1906 to 154 in 1907, and 73 in 1908; that is to say, with a force more than a third larger in 1908 there were only a third the number of deaths that occurred in 1906. Dysentery, next to malaria the most serious of the tropical diseases in the zone, caused 69 deaths in 1906; 48 in 1907; and in 1908 with nearly 44,000 only 16 deaths. But it is when the general figures are taken that we see the extraordinary reduction that has taken place. Out of every 1000 engaged in 1908 only a third of the number died that died in 1906, and half the number that died in 1907.

The death-rate among white males has fallen to 3·84 per 1000. The rate among the 2674 American women and children connected with the Commission was only 9·72 per 1000. But by far the most gratifying reduction is among the blacks, the rate of which had fallen to the surprisingly low figure in 1908 of 12·76 per 1000; in 1906 it was 47 per 1000. A remarkable result is that in 1908 the combined tropical diseases—malaria, dysentery, and beri-beri—killed fewer than the two great killing diseases of the temperate zone, pneumonia and tuberculosis—127 in one group and 137 in the other. The whole story is expressed in two words,

[1] Maunsell, Jamaica branch of the British Medical Association, Proceedings, Year 3, No. 12.

effective organisation, and the special value of this experiment in sanitation is that it has been made, and made successfully, in one of the great plague spots of the world.

In Italy, in India, in many parts of Africa, and in the United States the anti-malarial campaigns are being pushed with the same vigour and success, but time will not permit me to dwell upon any of these or upon the brilliant success which has followed the work of Bruce and his colleagues in clearing Malta of Malta fever, but I must stop to refer briefly to certain dark shadows in the picture of tropical medicine. Within ten years the investigations in Africa have shown the wide prevalence of formidable diseases of animal and man, unknown or previously but imperfectly known. The knowledge of the group of diseases caused by the trypanosomes has added terror to tropical life. The dreaded sleeping sickness which now extends over some million of square miles is one of the serious problems of life in Africa. A vigorous plan of campaign has been instituted, and already in Uganda, as the Governor's report shows, there is a steady diminution, and no whites have been attacked since 1906. The public will find in Boyce's book the whole story of the relation of tropical diseases to flies and insects, and this most timely contribution should help to call attention to the medical problems of the tropics and the supreme interest to the nation of these new maladies. And there is another dark spot in our story.

THE RECRUDESCENCE OF PLAGUE.

Certain epidemic diseases are very much like the fabled "Hydra," from which so soon as one head was cut off another sprang up to take its place, or what is just as bad grew again. Even the eternal watchfulness which safety demands is not of any avail against the workings of nature when we do not understand her laws, and when we are face to face with certain mysterious phenomena, the sweep of whose orbit we have not yet measured. Geologists tell us of epochs when there must have been a wholesale destruction of certain types, possibly by disease. More than once within historic days it must have seemed as if the very existence of the race was threatened, so vast and overpowering had been an epidemic invasion. No disease had so shaken the foundations of human society as the plague, which in the second century and again in the thirteenth has shown a capacity for wholesale destruction not shared by any other. In reading the Abbé Gasquet's picture of the effects of the great pandemic of the thirteenth century one gets the impression of the loosening of an irresistible cosmic force which swept like a tornado over the earth, leaving it desolate and almost uninhabited. We have traced the orbits of the planets, and the advent again of Halley's comet shows us how fully we understand the stars in their courses, but these are mechanical things, the laws of which are plain and legible in comparison with the many and as yet insoluble problems of life. One of these relates particularly to the extraordinary reappearance or recrudescence of certain epidemic diseases. 20 years ago when one spoke of the plague memories were recalled of the history of Athens in the days of Pericles, of Rome in the days of Marcus Aurelius, of the great pandemics of the Middle Ages, and then of the dwindling smaller epidemics of the sixteenth, seventeenth, and eighteenth centuries. But to the profession and to the world at large the plague was a closed book. A few knew that it lingered in certain centres, but none dreamed that it would again burst like the comet into our orbit. There was a certain fitness that it should have started on a world mission of destruction at Hong-Kong, the port which boasts the largest and most world-wide tonnage. When one considers the dynamic energy of the plague, its powers of resistance, its terrible killing capacity, exceeding all known vital forces, who can doubt that had its advent been in the middle instead of at the end of the last century civilisation might have had to face again the prospect of destruction. With slow deliberation since in 1894 it started in Hong-Kong it has reached 52 countries in every district of the world (J. M. Eager).

The outbreak in India, which began in 1896, has shown that under suitable conditions the disease has lost none of its old malignancy. With the exception of a slight decrease in the years 1900 and 1906, there has been a constant annual increase in the number of deaths, the total amounting now to between 6,000,000 and 7,000,000. On the whole, in other countries it has been held in check, and for so pandemic a prevalence during 15 years the total mortality cannot be said to be excessive. The two serious features relate to the difficulty of enforcing successful measures in India, and the extraordinary tenacity it has displayed in spite of the most vigorous measures for its total suppression. It is not without significance that at Glasgow, where there were small outbreaks in 1900 and 1901, two cases occurred in 1907 which could not be traced directly to shipping. As Lucretius says, in describing the great plague in Athens: "Appalled and doubtful mused the healing Art"; but we have made a great step in our knowledge of the means of its dissemination, and though we may well be appalled at the virulence of the disease in India, we have no cause to doubt the efficacy of the machinery which is keeping it in check all over the world. As an offset to the dark picture, India is the very country above all others in which the health of the European has progressively improved. The army statistics show an extraordinary reduction in the death-rate from typhoid fever, dysentery, and from malaria. Lord Kitchener remarked the other day that the improvement of the English troops in India in the past 10 years was equivalent to adding 2000 men to the strength of the army.

PLAN OF CAMPAIGN.

I have indicated briefly to you the pressing necessity to take up the heavy burden of securing health in the tropics. To make our knowledge effective, to make it as effective as Dr. Gorgas has done at the Isthmus of Panama, as Ross has done at Ismailia, is the problem which to-day confronts us. Enough has already been accomplished to indicate a successful plan of campaign. Two things are necessary. First, organised centres from which the work may proceed; a model of this sort is the "Sleeping Sickness" Bureau under the auspices of the Royal Society. The work which it has done and which is under progress shows the value of central organisation. Similar central bodies have already dealt with plague and malaria, but these organisations should be placed on a permanent basis and unified in some way under a central Tropical Institute, the different departments of which would be in touch with its workers all over the world.

How fascinating to stand at the window of the Nord-deutscher Lloyd's office in Charing Cross and see the chart of the position of every ship of their great fleet as it plies the seas of commerce, and one turns away with a tribute of admiration to enterprise and organisation. Given two not unattainable features, an Imperial Tropical Institute and strong affiliated schools, the health side of the burden of Empire might be undertaken with a staff of highly trained workers who could be sent hither and thither, wherever there was a disease to be investigated or a pest-hole to be cleared up. A map would show one hundred or more expeditions planted in India, Africa, and America, all like the Lloyd's ships, a testimony to organisation and enterprise. And this is no vain dream. By far the most useful work in British medicine during the past 20 years has been the result of just these carefully planned expeditions, sent out, partly by the liberality of the citizens of Liverpool, particularly Sir Alfred Jones, and partly as commissions by the Government and by the Royal Society. Not only have they added enormously to our knowledge of tropical diseases, particularly of plague, Malta fever, and sleeping sickness, but they have demonstrated the necessity of working at these diseases in the regions of their prevalence. It is not too much to say that the reports of the Liverpool School and of the Royal Society and the Government commissions are among the most valuable contributions made of late in this country to scientific medicine. More than this, there has in consequence taken place an extraordinary awakening of the profession to the importance of tropical disease, societies for its study have been organised in different countries, an International Society has been formed, special journals founded, at large seaports hospital wards devoted entirely to tropical diseases have been opened, and lastly schools for the study of tropical diseases have been organised. And here I come to one of the great factors in securing proper sanitation in the tropics—suitable provision for the training of workers. The country may feel a just pride in the schools which have been started in the two great seaports of the nation. In the hands of Ronald Ross and Rubert Boyce the Liverpool school, founded 10 years ago by Sir Alfred Jones, has had a career of exceptional vigour.

Backed by the citizens, and particularly by those princely souls Sir Alfred Jones and Mr. William Johnston, and with the coöperation of the University of Liverpool, it has drawn students and investigators from all parts of the Empire and from foreign countries. As an indication of its vitality I may mention that the school has already despatched 21 research expeditions to the tropics. And I am told that the entire "plant" of the school and the cost of the expeditions have been less than £75,000, a very modest sum considering the results. Started just 10 years ago by the wise support of Mr. Joseph Chamberlain, who will always be gratefully remembered as the statesman who taught us to think tropically, this school has had the great advantage of the guidance and the prestige of the name of Sir Patrick Manson, the dean of all students of tropical medicine. To him more than to any one man we owe the strong position occupied by the subject to-day in Great Britain. You have been singularly fortunate in securing a staff of teachers well known for their researches in tropical medicine, such as Sandwith, Simpson, Duncan, Cantlie, and Sambon, a director of such unusual experience as Daniels, and such well-recognised authorities as Leiper and Wenyon on helminthology and parasitology. In the heart of the Empire, in its richest and largest city, to which all the world pays tribute, one naturally expects a foundation commensurate with its advantages and responsibilities. With the aid of the Government and a few liberal friends a good start has been made and the school has taken a strong position among the educational institutions of the country. In the short time of its existence, it has trained nearly 1000 men for work in the colonies and dependencies, it has fostered original research in tropical diseases, and it has been an important centre for the diffusion of scientific knowledge. Need I dwell upon its peculiarly fortunate situation in the very midst of the commerce of the world, where sailors from every region congregate, bringing with them the diseases peculiar to their homes. The possibilities exist for the greatest of all schools of tropical medicine if London will but rise to the occasion. Liberal and encouraging at the outset, the Government has taken the usual course and has thrown upon the public the chief responsibility for its support. After reading a statement of the finances of the school furnished by the secretary, I am astonished that so much good work has been done with so meagre an endowment. Only the self-sacrificing devotion of the staff has enabled the school to achieve its marked success. I am sorry to have to say that neither the City of London as a corporation, nor its rich guilds, nor its citizens have contributed to the cause as might have been expected. The total expenditure on the school has been less than £40,000, a sum not more than sufficient to endow one department. As we all know, the extraordinary demands upon London are met in a way that makes it the centre for all beneficent enterprises. For church missions alone millions are contributed annually. It is not too much to ask for rich endowments for the missions of science.

I have tried to indicate the position which the new crusade occupies in the work of the nation, a work coördinate with, and almost of the same importance as, that of maintaining order. We cannot expect much more from the Government, which throws the onus of endowment upon private hands, but it makes the struggle hard when we come into competition with the Government-supported institutions of other countries. London, which should be the centre of the Empire, not alone commercially but in every relation, cannot be said to have kept pace in science with modern demands, and it has never realised its imperial position for post-graduate study. It is not a good thing for the Empire to find that so many of our young men who come from overseas for work slip away to the continent where they find conditions more favourable and better organised. It is not the sort of impression which one would like to have taken away from the Imperial capital.

This great question of tropical sanitation, in which we have only made a start, is bound to loom in larger and larger importance. Of the nations, England has the heaviest responsibility, as the figures I have quoted show, but she has the advantage of the first start and of strongly ingrained national ideas on the value of health. It is not too late to seize the opportunity. The United States, Germany, France, Holland, and Japan are in the field. Now is the time for new enterprise and a more complete organisation. That the Government is friendly and begins to realise the importance of the work is evident in the appointment of an entomological commission; but this is a vast and complicated problem which needs an organised effort on the lines I have indicated. An Imperial Institute would represent the general staff of an army of sanitation, the expeditionary forces of which could concentrate at any place and could be used for investigation, education, and supervision. Each unit would represent the staff of one of Dr. Gorgas's 17 divisions of the Panama Canal Zone and would take hold of an insanitary district and leave it pest free. Affiliated and ancillary would be the two schools which would serve as training colleges for investigators and sanitary administrators. Take, for example, this school. If I were Minister for tropical dependencies and a friend of a Chancellor of the Exchequer with a big balance, I would first establish six professorships, two of tropical medicine with a hospital of 200 beds, a good clinical laboratory, and a system of graded associates and assistants; a professor of pathology with a separate institute—and the model of the new one at Leipsic would be thought good enough; a professor of protozoology; a professor of helminthology; a professor of entomology—all of whom would have *carte blanche* for their laboratories, museums, and libraries. I would establish subsidiary schools in the tropics, in West Africa, Uganda, and India which would serve as centres for the mission work in those countries. By no means a visionary scheme, and well within the possibility of achievement, it would not demand an endowment of more than a couple of millions. Once get the intelligent business men to take up this as a business scheme in the interests of the whole Empire, and they will not, as they never have in the past, shirk their duty, but in slow and steady streams of a few thousands now and then, in big rushes, let us hope, of a hundred thousand now and again, the necessary amount will be made up.

Is it likely that the white man can ever thrive in the tropics except as a sort of exotic, as he is at present in the West and East Indies? As the nations of the north and south increase and multiply, doubling every century, will he find an outlet by settlement in the tropics, or will he simply use them as Rome did Egypt, as a granary? It cannot be said that so far the European has been a success as a settler in the tropics, since no white colony has ever prospered below 30 degrees of northern latitude, but has he ever had a chance? In contact with brown and black races, which have become inured to heat, tolerant of parasites, and more or less immune to the worst of the tropical diseases, he has so far never had an opportunity to show of what he might be capable when placed in really sanitary surroundings. The 8000 whites now at the Isthmus work eight hours a day in the burning sun, and they with their wives and children thrive and enjoy a health quite as good as dwellers in any town in the United States. Heretofore man has never met nature on equal terms; now science has taught him how to be master, but the knowledge is so new and so recently made effective that we have not the data from which to make a clear judgment. How far the introduction of tropical diseases has accounted for the decadence of Greece has been discussed by W. H. S. Jones and Ronald Ross, who seem to have made out a good case, but given a white race living in the tropics for two generations, and free from malaria and parasitic anæmia, would it show the hardy vigour at present the characteristic of the Anglo-Saxon? Time alone will tell. Personally I doubt it. Man is a lazy animal, and the best thing that ever happened in his history was when Adam's wife ate the apple and they both were turned out of a tropical Eden to ea n their bread by the sweat of their brows. As Sir Charles Dilke has remarked, the banana is the curse of the tropics, and when have ever "the blossom-fed Lotophagi" done anything for the race? The most successful attempt has been in the English West Indies, but commercial conditions have been adverse, and to-day the negro may be said to possess the islands where the white man lives it is true, but hardly thrives. No, it has been found in the past, and it will be found in the future, that the men of mettle, the men who have made the world their Odyssey, have been reared in Ithaca's rugged Isle "of hardy youths a nurse of name." It is good for man to have the "rebuff that turns earth's smoothness rough," and this is not what he gets amid the fascination and fertility of the tropics, which, as Homer says, breeds—

> "A race
> Of proud-lived loiterers that never sow
> Nor put a plant in earth, nor use a plow
> But trust in God for all things."

When Isaiah was discussing the burden of Babylon, the burden of Tyre, and the burden of Egypt, I wonder what he would have said could his prophetic eye have glanced at the map on which is depicted the burden of the British Empire. Surely no nation in history has ever had such a load of responsibility. But fit as it has been in the past it will ever be fit so long as *salus populi* remains *suprema lex*. It only behoves us to see that we are well equipped for the second great task—the task of the future, to give to the teeming millions of our dependencies that greatest of all blessings in life, good health.

A Lecture
ON
AN IMPROVED METHOD OF REMOVING THE TESTICLE AND SPERMATIC CORD FOR MALIGNANT DISEASE.

Delivered at the Middlesex Hospital

BY JOHN BLAND-SUTTON, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL.

GENTLEMEN,—Tradition plays an unconscious part in the acts of the most unconventional surgeon. This is the only explanation I can offer concerning the universal practice among surgeons when performing the ancient operation of castration for malignant disease of the testis, in allowing their efforts to be limited by the internal abdominal ring.

The immediate risks of orchidectomy for malignant disease under modern conditions are trifling. The remote results are most discouraging, for within a few months, in the majority of instances, the disease returns in the stump of the spermatic cord (recurrence); or the lumbar lymph glands become infected with cancer and form huge masses in the abdomen (direct lymphatic infection); or secondary nodules appear in various parts of the body (dissemination). It is undeniable that the modern method of extirpating the primary growth, the associated lymphatics, and the lymph-glands (or nodes) in dealing with cancerous organs has greatly improved the remote results of operations designed for the relief of cancer. This is manifest in the case of the breast, the lips, and the labia. As far as I know no one has attempted to apply this method in the operative treatment of malignant disease of the testicle. I determined, when a suitable case came under my care, to remove the testis, the spermatic cord, with its arteries, veins, and lymphatics, and the associated lymph-glands which lie on the inferior vena cava.

In September, 1909, a man, 31 years of age, consulted me on account of an enlarged right testicle. The increased size of the organ, its weight, and non-translucency indicated clearly that the organ was attacked by malignant disease. The enlargement was obvious in February, and had been progressive. The left testis was retained in the inguinal canal. The patient readily submitted to any measures which promised him relief. After due preparation the following operation was performed at the Middlesex Hospital.

The scrotum was freely incised and the right testis was exposed. I then introduced the scalpel into the testis to satisfy myself that the enlargement depended on a growth. The testis was freed from its investments and the spermatic cord was isolated as far as the internal abdominal ring. After much of the loose scrotal skin had been removed, the bleeding vessels were ligatured with fine silk, and the testicle was enveloped in a fold of sterilised gauze. Up to this point the operation had been conducted with hands enclosed in sterilised rubber gloves; these were removed and the hands were carefully washed for the second stage. This consisted in making a free incision of the right abdominal wall in the line of the linea semilunaris from the costal arch to the opening in the inguinal canal. The incision divided all the structures of the anterior abdominal wall down to the peritoneum. Gentle tension on the testicle soon showed the position of the spermatic vessels lying in the loose areolar sub-peritoneal tissue. In order to isolate them they were surrounded by a thin silk ligature just before their termination in the vena cava. The vas deferens and its artery were ligatured and divided at the brim of the pelvis. I then detected a hernial sac lying in relation with the spermatic cord; its neck was encircled with silk and the pouch was removed with the cord and testicle. At this stage the retroperitoneal tissues of the right lumbar region were well exposed and this enabled me to examine the parts about the aorta and search for enlarged lymph-glands. I found one on a level with the third lumbar vertebra, lying on the anterior face of the vena cava; although as big as a haricot bean it shelled out easily. A very careful search was made for other lymph-glands but without success. In spite of the large area of tissue opened up there was very little loss of blood, and the only vessels, apart from the spermatics, which required to be ligatured were those divided in the scrotum and in the abdominal wall. The abdominal incision was closed by means of interrupted silk sutures, and the cut edges of the scrotum were brought together by sutures of thin silk. It was thought to be prudent to insert a narrow rubber tube into the depths of this extensive wound for 24 hours. The wound was dressed with sterilised gauze and Gamgee tissue, held in position by a many-tail bandage, reinforced in the inguinal region by a spica bandage. Afebrile healing followed, with a rapid convalescence. The patient left the hospital on the seventeenth day after the operation.

The parts removed were hardened in equal parts of methylated spirit and water. The enlarged lymph-gland was prepared for microscopical examination by Mr. Somerville Hastings, and we were surprised on looking at the sections to find that they contained cystic spaces lined in some sections with columnar or sub-columnar epithelium. In a few it was stratified. This, of course, indicated the nature of the primary growth. Ten days after the operation I divided the testis and found a cystic tumour occupying the space between the epididymis and the body of the testis. The secreting tissue, compressed into a thin stratum, formed a strap over the upper pole of the tumour.

On microscopical examination the tumour presented the usual characters of its class, inasmuch as it consists of a complex arrangement of intercommunicating tubules embedded in a richly cellular connective tissue stroma, presenting, here and there, cylindrical knobs of hyalin cartilage. In some parts of the stroma, strands of tissue very like unstriped muscle tissue were seen. The tubules were lined with epithelium, which in some of them was stratified, and in others columnar in shape. When the structure and epithelial lining of the tubules in the primary tumour were compared with the cysts in the lymph-gland removed from the loin the identity was complete. This is sufficient proof of the malignancy of the tumour which, in its microscopic, as well as in its general, features, might easily be regarded as an innocent species. I have devoted much time during the last quarter of a century to the study of the secondary deposits of malignant disease, but no better example of the detailed reproduction of the structural features of a primary tumour has come under my observation than the cystic growths which we found in the lymph-gland of the man the subject of these observations.

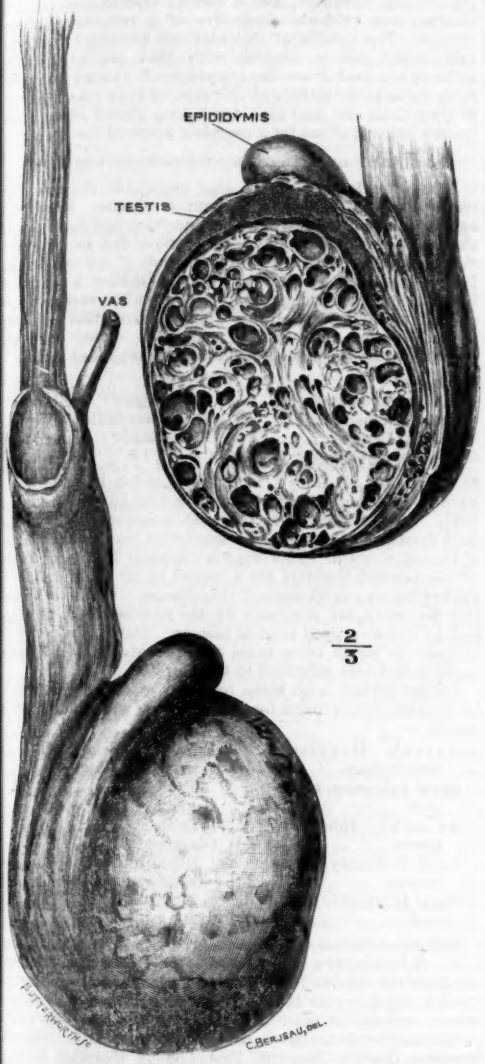
CYSTIC DISEASE OF THE TESTIS.

Our knowledge of these remarkable tumours was greatly increased in 1853 by Curling; he named this condition "general cystic disease" of the testis, and pointed out two of their most important features—namely, the frequent presence of hyalin cartilage in them and the fact that such tumours are situated between the epididymis and the testis proper. As the tumour increases in size it squeezes the secreting tissue of the gland and flattens it out till it forms a thin stratum over its upper pole. (Fig. 1.) This led Curling to believe that such cystic tumours arose in the rete testis; his observations have borne fruit and have led several investigators to take an interest in them. There are three kinds, or species, of tumour which arise in the tissues between the epididymis and body of the testis. In their type forms they are quite distinct and receive specific names: (*a*) adenoma testis; (*b*) cystic disease of the testis; and (*c*) dermoid or teratoma of the testis. In their intermediate forms they run one into the other and examples occasionally come to hand in which the characters of all three are blended.

The adenoma testis in its typical form is a solid tumour;

it is composed of tubules formed of epithelium with a narrow central lumen. The epithelium in the specimens I have examined resembles the epithelial cylinders which are often found in the renal sarcomata of infants, but in testicular adenomata the epithelial cylinders often lie juxtaposed without the intervention of connective tissue. Tracts of cartilage are sometimes present, whilst here and there in some apparently completely solid tumours, cysts due to the dilatation of the tubules, are seen in the sections.

FIG. 1.



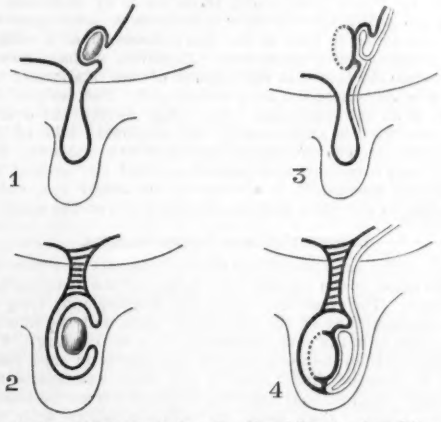
A testis with the spermatic cord and the spermatic vessels, removed by operation from a man 31 years of age. A hernial sac was removed with it. The testis is shown in section. A cystic tumour has grown between the body of the testis and its epididymis. The secreting tissue of the testis is flattened over the upper pole of the tumour.

The cystic form is well illustrated by the specimen represented in Fig. 1. It differs from the adenomatous species in that the epithelial cylinders are dilated and the lining epithelium has become altered in shape in response to the pressure exerted by the accumulated fluid within the tubule.

The dermoid or teratomatous species is as striking in its general naked-eye features as the cystic form, for it contains hair and often teeth. It is, however, in its most developed form the rarest of all tumours of the testis. In order to give some notion of its rarity it may be mentioned that specimens of the adenomatous and the cystic species exist in all the pathological museums attached to the medical schools of the metropolis, but there are only three specimens of testicular dermoids containing hair. There is one at the Royal College of Surgeons of England, one at St. Bartholomew's Hospital, and one at St. Mary's Hospital.

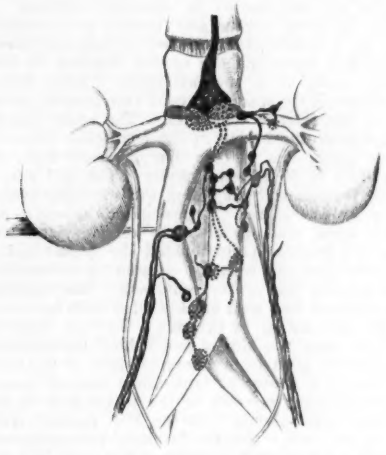
During the last 30 years four examples of testicular dermoids have been reported by Englishmen—namely,

FIG. 2.



A series of diagrams to show the old and the new view of the peritoneal relations of the testis. Diagrams 1 and 2 represent the peritoneal relations of the testis during and after its descent as usually taught. Diagrams 2 and 3 illustrate the Hoffmann-Frankl view in which the body of the testis is shown as an intraperitoneal organ (after Frankl).

FIG. 3.



A diagram showing the position and relations of the lymph-glands associated with the testes. The results were obtained by means of fine injections. (After Mos

D'Arcy Power, 1887; Jackson Clarke, 1896; Kuhne, 1908; and the writer. The sources of these testes are interesting, for Clarke's specimen was removed from a Hindu boy by Lieutenant-Colonel G. M. J. Giles; my specimen was removed from a Chinese lad at Hankow by Dr. R. T. Booth; and Kuhne's specimen was obtained from a Chinese boy, aged 4 years, at Tungkau. Recently another specimen has been obtained in London which I trust will soon be described.

We have in these three species of tumour a very natural genus, Testicular teratomata. In their type forms they present clearly defined characters, but in the intermediate forms they run gradually one into the other, and the dermoid

or teratomatous species contains all the structures which are found in the solid and the cystic forms. Moreover, the mode of origin of these tumours in the tissues, between epididymis and testis proper, constitutes a very striking common feature independently of the histological evidence concerning the similitude of the peculiar structures which form so much of their bulk.

Embryologists have by no means been idle, for they have investigated the nature of the tissues in the vicinity of the rete testis, and have succeeded in detecting fœtal vestiges connected with it. Some interesting observations have been made by Frankl (supporting those made by Hoffmann as long ago as 1870), which show that the outer covering of the testis is similar to that of the ovary, inasmuch as it consists of involuting germ epithelium. Moreover, we have now to appreciate the fact that our notions of the relations of the testis to the peritoneum must be changed. The body of the testis is an intraperitoneal organ (Fig. 2) like the ovary; the idea that it slips behind the peritoneal fold of the funicular pouch to be invested by it must be abandoned. The epididymis is covered with peritoneum and the limit of the peritoneal investment is obvious to the naked eye, corresponding to the white line detected by Farre on the ovary.

LYMPHATICS AND LYMPH-GLANDS.

One of the most prominent clinical features of carcinoma of the testis is the rapidity and extent of the lymph-gland infection. The great size which the lymph-glands lying in the neighbourhood of the abdominal aorta and the inferior vena cava attain in some patients is truly astonishing. The lymphatics from the testis traverse the spermatic cord (they vary in number from four to six), and accompany the spermatic veins without receiving tributaries from the tissues around them. They have no communication with the lymphatics of the scrotum and this sufficiently explains the absence of enlarged glands in the groin when the testicle is cancerous, unless the tumour has implicated the skin of the scrotum.

Most made a careful study by means of fine injections of the lymphatics and lymph glands associated with the testis, and the results of his investigation are represented in Fig. 3. Here the lymph-glands and lymphatics belonging to the testes are represented in complete outlines. Those belonging to other organs and tissues are dotted. The picture is a combination of two injection-preparations: the right side represents the results obtained by injecting the right testis of a newborn infant. After filling the lymph-vessels of the spermatic cord two lymph-glands were found on the inferior vena cava. The upper gland communicates with others lying in the connective tissue behind the vena cava; one of the lymph-vessels leads to the receptaculum chyli (cisterna chyli). The left side represents results obtained by injecting the spermatic lymphatics of a boy 4 years of age. Several glands appear in relation with the aorta, and two of these communicate with the cisterna by a lymphatic lying behind the great blood-vessel. A third communicated with the cisterna by a vessel running over the anterior face of the renal vein. The cisterna chyli and the thoracic duct were quickly filled with injection fluid up to its termination in the vein. On both sides lymph glands lying near the kidney and behind the aorta and the vena cava were filled by a retrograde flow of the injection-fluid. This is a matter of importance because cases occur in which malignant tumours of the testes lead to enlargement of the lymph-glands from the fifth lumbar vertebra to the root of the neck. It is the intimate association with big blood-vessels which is the chief obstacle to the surgical removal of these cancerous lymph-glands. In the case which forms the subject of this lecture the position of the enlarged lymph-gland which I removed is accurately indicated by the upper of the two lymph-glands lying on the inferior vena cava.

The fact is clearly recognised by surgeons that the infection of the abdominal lymph-glands paralyses their efforts in the effective treatment of many malignant tumours of the testis. Some surgeons (including Kocher and Roberts) have been enterprising enough to attempt to extirpate the retro-peritoneal lymph-glands when they have formed huge lumps subsequent to the removal of the testis. Such efforts have rarely been successful, but Foulerton gives the details of a case in which a man aged 28 years had his left testicle removed in India on account of a malignant growth described as an "adeno-sarcoma." Two years later he was admitted into the Middlesex Hospital on account of a tumour in the left side of the abdomen. In March, 1895, this mass was removed by Sir Henry Morris; it consisted of enlarged encapsuled glands which contained numerous small cysts. On microscopical examination the structure of these masses resembled that presented by the "general cystic disease" of the testis we have been considering, cystic spaces lined with epithelial cells forming a conspicuous feature of the sections. This man recovered from the operation and reported himself in July, 1896. He was in a hypochondriacal condition, but a careful examination failed to disclose any evidence suggestive of a recurrence of the disease. The details of this case are encouraging, for the histological picture accords with that presented by the sections obtained from the lymph-gland which I enucleated from the anterior surface of the inferior vena cava. In view of these facts one may look for a long period of immunity for my patient, if not for a complete arrest of the disease.

FREQUENCY OF MALIGNANT DISEASE OF THE TESTIS.

It is important to realise that malignant disease of the testis is, on the whole, an uncommon disease. Some years ago I attempted to determine this question and found that in the large general hospitals in London one or two cases represented the yearly average. In view of the present case I have made an attempt to give the matter a statistical foundation by collecting the returns from the various metropolitan hospitals for the year 1907. During that year there were 12 testes removed for malignant disease, and the distribution of the cases is shown in the subjoined table:—

London	3	Guy's	1
St. Bartholomew's ...	2	St. George's	1
Great Northern	2	University College ...	1
Charing Cross	1	Westminster	1

At the Middlesex, Cancer, Royal Free, St. Peter's, St. Thomas's, St. Mary's, and West London Hospitals there were no cases of orchidectomy for malignant disease during 1907. These results as to the relative infrequency of malignant disease of the testis are supported by the observations of Russell Howard. This surgeon gathered from the records of the London Hospital for a period of 20 years ending in 1907 references to 65 cases of this disease. Of these, he was able to verify the diagnosis by the microscope in 57 cases and to obtain a good clinical history. During the period of 20 years in which these cases occurred about 110,000 male patients had been admitted to the hospital.

For comparison with these results I extended the inquiry to some important towns for the same year with the following results:—

Queen's Hospital, Birmingham	4	Royal Victoria Infirmary, Newcastle-on-Tyne	3
Royal Infirmary, Liverpool	1	Royal Infirmary, Bristol	1
General Infirmary, Leeds	2	Glasgow:	
Royal Infirmary, Manchester	2	Royal Infirmary ...	0
Royal Infirmary, Edinburgh	4	Western ,, ...	0
		Victoria ,, ...	1

Malignant disease of the testes occurs in infants and young boys; it is happily a rare disease. Mr. Somerville Hastings obtained the returns from ten hospitals for sick children in London for the year 1907. There were no examples of this disease during that year. The names of the hospitals which furnished returns are given in the following list:—Belgrave Hospital, Queen's Hospital, East London Hospital, Evelina Hospital, Cheyne Hospital, Paddington Green Hospital, Victoria Hospital, Grosvenor Hospital, Great Ormond-street Hospital, and Royal Waterloo Hospital.

It is not my intention to obscure the theme of this lecture by an academic discussion on the vexed question of the nature of the morbid growths which arise in the testis. The results hitherto obtained by the ancient and simple method of castration (or orchidectomy) as a means of relieving men afflicted with malignant disease of the testicle are notoriously bad; it is therefore time that efforts were made to treat these conditions on the radical lines now universally practised in regard to cancer of other external organs, notably the lips, the breast, and the labia. This consists in the wide extirpation of the area primarily affected, and the complete removal

of the associated lymphatic area and lymph-glands. The details of the operation described in this lecture show that the "radical method" is applicable to the testis, and I venture to hope that other surgeons who have the opportunity of dealing with such cases will carry out this method, and keep the patients under observation for a sufficient period to enable us to gather evidence wherewith to judge of its merits.

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TYPICAL AND FRACTIONAL PNEUMONIA.

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A DISEASE is a series of symptoms, normal and abnormal, recurring in a certain species or genus with fair uniformity; not with identity, for even in health no two individuals are, or ever have been, identical, but with fair uniformity. To compass this uniformity, external causes must be fairly uniform, and the structure of the individuals likewise fairly uniform; though, again, in none of these aspects is there identity. If, the specific causes being constant, the individual be of another kind, if this side of the equation be thus varied, the issue will be a different form of disease. But it is no less evident that, as between individuals of the same kind, and again between different kinds, there are infinite gradations, so in disease the gradations are also infinite.

There are in nature, then, no compartments; for our own exigencies we fabricate classifications and Nature smiles at them, going her own way. These classifications are arbitrary; they are conventional devices to meet the finite faculties of man. If, after the French manner, we make them precise, we miss the complexity of nature, we try to gather the wind in a net; if, after the "Celtic" manner, we try to embrace the infinite we are lost in the vague. So we vacillate between the lucid and the incomprehensible, between the concise, which lets slip the finer issues but makes argument hard and brilliant, and the illimitable, for which our apprehensions and our language are alike too rudimentary. In labelling diseases, then, we shall not forget that these processes observe no precincts, and recur with only fair uniformity.

In the simplest organisms disease must be simple; the creature must fall ill all ways at once. As we ascend the ladder of organisation organs are segregated, taking on more and more specific though in our experience never absolutely peculiar qualities. So likewise their perturbations must become various; they must run more and more along particular lines or issues of function; though, as the organs are not absolutely specialised, but still in various degrees can supplement each other, and this again very variously in several individuals, so in the correlative paths of disease we shall see never more than a fair uniformity, but yet more and more uniformity as we ascend the ladders of organisation, as functions are more and more segregated, and as the creature in health works more and more along many differentiated lines. The idea of the diseases possible for any particular creature is then contained in the idea of its diversified paths of function, and is as simple or as complex as these.

Again, as in aid of classification we construct for normal functions a series of types, so we do for diseases, which run along the same more or less delineated paths, and are indeed the shadows of the several functional segregations, for which also we construct Types. And the Types are as arbitrary as the Classes: they are go-carts for the infant observer. Taking clinical experience as our guide, we call to remembrance the cases of a certain disease in our own experience, and consult the records of the experience of others concerning it. Thus we discover that, although perhaps every symptom taken singly may be found in other, probably in many other, processes, yet in those many processes they are collected in as many different degrees of density. Some very few may indeed be almost singular—"pathognomonic," as we say—but these are admittedly few; if closely scanned, perhaps elusive. Speaking generally, the contrasts of disease lie in the areas of relative density of certain symptoms which are by no means, when taken severally, peculiar to any one of them. Among a hundred cases of pneumonia, let us say, we find many in which the symptom of tubular breathing, or of dulness of percussion, is absent, yet upon the whole the frequency of either or both of them is very high; that is, if for the hundred cases we plot out these two symptoms by stars upon a chart, we shall find the density of either or of both to be very thick. In some other diseases they would prove, it is true, to show also some density, but the differentiation (the diagnosis) would then appear on a comparison of the densities of companion symptoms. Furthermore, by making a survey of a large number of cases of a certain disease thus plotted out we should be enabled, by observing, selecting, and assembling those symptoms which proved to be of considerable density, to build up a scheme of it. This, as we have admitted, would be an arbitrary process, because in the selection we should have to neglect many margins and gaps; still, on the whole by this abstraction, or paradigm, from an adequate number of records we should find it possible, as it is possible in other spheres of thought, to construct an ideal, an imaginary picture, like that of superposed photographs, of the disease under our study. This figure is the Type; and, as on conscious or unconscious reference of each subsequent case to this ideal form we note its approximation or its divergence from this, so we speak of the cases as "typical," or as "aberrant," or even as "atypical"—that is to say, lying outside any Type. These last cases which "prove the rule" are often crucial instances, and by their very deviation may point out to the vigilant observer some deeper or cross affinity previously unsuspected.

The Type is then the ideal case which never was in bed *or* book; like the Class it is a mental concept in each of us, one on which we agree in so far as men's various minds in that respect are in harmony. To give real existence to these concepts of class or type, to call such an abstract idea an entity—i.e., a *being*—is a return towards demonology. The only entity is the particular patient under observation.

Now to return to pneumonia: a mental picture or type of it has been thus manufactured by collecting from a large number of cases the relative densities of the recorded symptoms; and amongst these we find the most frequent to be pain, fever, dyspnœa, cough, a peculiar expectoration, &c. We will call the number of symptoms or features included in the type—a somewhat arbitrary number, as we have seen, for at the edges we may hesitate which to take in or to discard—this number we will call *n*. And we may represent the constituent symptoms by the previous letters of the alphabet, by *a*, *b*, *c*, *d*, *e*, and so forth. But as no case accomplishes our ideal concept of the Type, we shall find in each that a few or a many of these letters drop out. They do not, however, drop out, and this is one of the points I would emphasise—they do not drop out casually after a scattered, haphazard fashion, they stop out in little united or confederate gangs. Thus *d* to *h* may fail, and perhaps *l* and *m* likewise with them. For instance, cough and expectoration may fail—as in old persons or in the insane; and with their evasion the febrile group also may be absent, or, at any rate, insignificant. There seems, then, to be some method in these evasions; what is it? If by comparing a sufficient number of cases we are fortified in our notion that from the ideal type certain little parcels of symptoms often and indeed generally fail to appear, and this by some links, in some methodical way, why then by noting these innings and blanks we might put together some subordinate types, or hypotypes, and thereupon try to detect a corresponding parcelling of the causes. And having done this we might, on betaking ourselves to the bed-side, find ourselves enabled not only to refer the piecemeal cases to the respective hypotypes, but also to analyse the completer cases into certain associated or interpenetrating parcels of symptoms. For example, we might perceive in one case that cardio-arterial, vaso-motor,

and gastric symptoms were due in great measure to irritative processes in the bulb, while in another they were due severally to direct impairment in heart, lung, or stomach itself. In full complex cases no such discriminations could become possible unless the analysis had already been made by particular studies of the sundry piecemeal cases. When we have learned to pull a case in pieces and to discern the subordinate gangs of symptoms severally, we shall know how to interpret their respective sources and stresses, and thus to prevent or to alleviate them when mingled, or piled one upon another.

When, however, does a case of pneumonia—and I have taken pneumonia as a class for application to all classes—when does a case of pneumonia, by such fragmentation as we have been supposing, cease to be pneumonia? When by such eccentricities would it forfeit its name? Well, frequently; as, on the margins of the class, cases fade or melt into cases of other classes, or into zones of anomaly. We began by declaring that classifications are all and each of them arbitrary concepts, and types but abstract ideas. But, even if we keep strictly within the four corners of familiar cases, there are many variations of the pneumococcic pulmonary diseases ordinary acute pneumonia, the pneumonia of children, that of the drunkard, that of acute mania, that of sepsis, and so on, to name but a few. We know besides that the pneumococcus is prone to attack other parts, such as the joints, the meninges of the brain, and other tissues, which events are effects of this particular specific link in the chain of causation. But beside this specific agent there are evidently large groups of other determining antecedents by which the issue is compelled in this direction or in that; broad variations which we may attribute to various antecedents, on the one side of the equation or on the other; on the part of the external causes or on the part of the individual. Or there may be rare or irregular determinants on both sides, when the analysis becomes more and more difficult. Yet these and such questions are of urgent practical importance. The pneumococcus, let us say, may vary much in virulence; but generally this kind of variation would affect rather the degree than the form of the attack. We know, however, that microbes differ waywardly within their kinds, as is shown to us, for instance, in the group of which the B. coli is a familiar example. Again, such is the specificity of vital molecules that minute variations may so divert affinity that a toxic molecule may hook itself on to one organ rather than another, to an eccentric rather than to what we should call its normal attachment, and thus, perhaps, to an organ, geographically speaking, as far from its usual haunt as the knee is from the lung. Notwithstanding this, I think that partialities in the determination of a particular microbe to this organ or tissue or to that usually depend more on differences in each or either between one individual and another. When pneumonia, for instance, attacks several persons in the same household, the pervading microbe is presumably the same in quality in all the cases, yet in each of them the clinical series, the line of attack, may be very different.

Permit me now to illustrate these arguments by a few particular cases. Of ordinary acute pneumonia I need not describe an example. It would be after the accepted type, with the accelerated pulse and respiration, the pain, the characteristic cough, the rusty expectoration, &c., and would present the signs of consolidation of the lung.

With this "typical case" I will now compare the following. A young lady, in excellent health to all appearance, started with her sisters in a motor-car for a ball at a considerable distance from her home. On the journey she felt sick, then vomited. The vomiting continued, becoming, indeed, more severe, until she saw it was impossible to accompany her sisters to the house of her friends, and consequently was taken home. On her way back the vomiting became so bad that she had to lie with her head hanging out of the car. She had a restless night, but feeling better in the morning got up. At the lunch hour, however, she fell off again and returned to bed. The family were friends of mine, and being near them I saw her twice a day till the crisis was over; about the sixth day it set in favourably and she made a good recovery. But during the illness we were continually anxious about her. As regards the chest indeed it was not easy to discover the lesion. For three days at least I sought for a patch of the disease in vain. On the fourth day, if I remember right, I ascertained the presence of a small patch of pneumonia in the right axilla; it was to be heard in the armpit only and over a small area. The expectoration was scanty, but the one or two sputa obtained were rusty and glutinous. The anxiety lay elsewhere—namely, in the behaviour of the pulse and respiration, for the pulse ran continually at 128–130 and the respirations at 55–60, and this although the patient was calm and amenable.[1] She indeed did not make much complaint and had no apprehensions. And I desire to emphasise this—that from first to last she never had even a passing delirium. One almost doubted the reports of the nurses, but we were assured on repeated questioning that not even for one moment did she wander. The temperature was disposed to run very high, but was remarkably controlled by moderate doses of phenacetin, as if it was an incidental phenomenon. And as events fell out, the case proved to be a benignant one; we were unnecessarily apprehensive. With the crisis these alarming rates of pulse and respiration fell to the normal, and of the local trouble we heard no more. Here, then, we had a parcel of the disease, in most prominence a gang of symptoms referable to the medulla—namely extraordinary and persistent vomiting, rapid pulse, and rapid respiration—and these not due to pulmonary embarrassment, for the pulmonary condition, save as a criterion of diagnosis, was negligible, and cyanosis, often looked for, if present at all, appeared only in a fuller cherry colour of the lips. From such an example as this we learn, I think, that even in a typical case dyspnœa and quickened pulse may not always be due entirely—possibly sometimes not at all—to the lung lesion, but only in parallel with it, although, of course, the two parcels of symptoms may reinforce each other or be blended inextricably.

The second case I would quote is one I saw with Dr. H. B. Roderick of Cambridge; it occurred also in a young lady. In this case the pulse and respirations were not greatly disturbed; there was nothing in them to disquiet us. In her, likewise, the pulmonary signs were difficult to verify. Dr. Roderick, who kept a vigilant ear to the chest, could not detect any physical signs of pneumonia till the third or fourth day, and then over a narrow and indefinite area at the back of one lung. A few days later, for the case did not clear up decisively about the sixth day but after a partial crisis relapsed, another patch, but also very moderate in extent and degree, appeared in the other lung, accounting for the relapse. But even then the total pulmonary symptoms were slight, and might, indeed, have escaped observation. Nevertheless, the case was a most alarming one. On both my visits, which were paid during the two acuter phases, the patient was in a hemicomatose state, with contracted pupils, some muttering delirium, and occasional muscular twitching. The nights were spent in violent delirium. The negative signs of the urine hardly allayed the apprehensions of uræmia, but as the second phase of the pneumonia subsided these cerebral symptoms also diminished. Cases of severe cerebral symptoms, especially of prominent delirium, are fairly well known in cases of pneumonia in which the pulmonary symptoms are inconsiderable; and in these the pneumonic patch is often at the apical portion of one lung. In this case, then, out of the typical series of pneumonia we had segments; the poison attached itself to the cerebral area, as in the former case it adhered to the medulla. But this is not all; on my return from the Long Vacation Dr. Roderick and Dr. Latham told me that after another abbreviated crisis the cerebral symptoms returned in all their severity with a small patch of pneumonia at one apex, and again the same cerebral series was repeated with a small patch somewhere else ("pneumonia migrans"). The bulbar symptoms were inconsiderable. It is probable, then, that in some of the completer cases the cerebral symptoms are not due merely to imperfect aeration of the blood; though of course they may be thus aggravated. But out of the complete series we may have the cerebral parcel, or the medullary parcel, and so on; and in each case it is important for the practical man, so far as may be, to analyse particular cases that he may discriminate the places of the component parts in the series. Or, on the other hand, whatever be the significance of the name, we may be dealing with pneumonias unawares; that is, cerebral parcels of it, or medullary parcels, with

[1] In my article on Paroxysmal Tachycardia in the new edition of our "System of Medicine" I have referred to two cases of pneumonia in which the pulse suddenly rose to 160 and more and subsided without much apparent significance. One of these cases held a moderate course throughout.

which the pulmonary, or cardiac, or febrile, &c., parcel may not coincide, or only in degrees so slight as to be latent. I recall a case I saw many years ago with Mr. T. Pridgin Teale in which some such illness was a riddle; cerebro-medullary symptoms were almost desperately alarming, even to extreme and persistent Cheyne-Stokes respiration, and no sign of pneumonia whatever could be detected by three of us; yet convalescence was complete. I cannot now say the case was one of pneumonia, but its causes, initiation, and periods were not inconsistent with it.

I think I have said enough on this discrimination of short sections of the pneumonic series, as contrasted with the mere lapses of odd symptoms, to illustrate my point of view; but I would make a short digression to cases in which the pain is very severe and persistent. This I can scarcely describe as fractional pneumonia, for I am now contemplating cases in which the type as a whole is fairly represented. In my experience persistency and grievous severity of the pain forbode evil; indeed, I am disposed to go farther and to say that this sign is almost of fatal significance. I wonder if this is a general experience? I am disposed to think they are cases of a mixed (streptococcic?) infection, for reasons which I cannot now enter upon.

In conclusion, as I am writing on pneumonia I would venture to refer, somewhat irrelevantly, to a recent case of great practical importance, though its features lie outside my segmentary categories. It showed that thrombosis of the pulmonary artery—for such, no doubt, was the nature of the case—may establish itself without notable direct effect on the cardio-respiratory mechanism. A middle-aged man, a patient of Mr. C. G. Cory of Soham, was attacked with pneumonia, severely, but not to an extreme degree. The crisis set in duly, and at this turn of the case I remarked to Mr. Cory that the patient would now do well if no clot formed about the heart. I cannot say what made me make this proviso; I scarcely think there was then any sign of such a misfortune. In a few days, when, indeed, the case had passed out of my mind, I received a telephonic message from Mr. Cory saying that the patient was not doing at all well, and that so urgent was his discomfort that almost imperceptibly doses of brandy had increased to the amount of 12 ounces a day. He reported further that the pulse was 84 and regular, the heart's action undisturbed, the respirations moderate, and the temperatures normal. Thus reassured I suggested that the patient might be oppressed by the large quantities of brandy. Mr. Cory's reply was that they feared he could not do without it, as "he felt so bad." I heard no more for two or three days, when I was informed that the symptoms in detail were as before, but the discomfort no less, and I was asked to see him again. On entering the room one saw directly that the report had not been overcharged; he had a distressed aspect, he was restless, and the face was too cool and moist, and was rather, but decidedly, livid. Yet even then no abnormal signs were to be made out. The pulse was 84, and irreproachable; the respirations within moderate limits, and the sounds of heart and lungs—except, of course, trifling remnants of the pneumonia—were without any defect of quality, or any addition. I listened to the heart twice or thrice and for long periods, probably for five minutes at a time, but even then was unable to detect the slightest murmur or irregularity. Mr. Cory, whose examinations were frequent, had never heard any fault. Notwithstanding, thrombosis was an unavoidable diagnosis. A day or two later when the nurse was making her records, and had just counted the pulse—still ranging about 80–84, and regular—she turned aside to enter the number on the chart; as she was making the entry at the bedside, scarcely more than a second or two had elapsed, she heard a sound, the pulse had stopped, and the patient was passing away. We are but too familiar with these cases of thrombosis, but in my experience a persistently steady cardiac and respiratory rate, rhythm, and quality up to the moment of death is unique. No necropsy was made.

Cambridge.

CENTRAL LONDON THROAT AND EAR HOSPITAL.—The winter session of this hospital was opened on Nov. 8th, when Mr. Charles Ballance, M.V.O., delivered an address entitled, "The Lesson to be Learnt in London from the History of the Mastoid Operation."

ON RADIUM IN THE TREATMENT OF CANCER AND SOME ASSOCIATED CONDITIONS.

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MANY times during the last year I have been asked whether radium is of use in the treatment of *cancer*. I propose to give a short account of my experience on this very weighty question.

Up to 13 months ago I had only been in the habit of sending cases of rodent ulcer to be treated with radium by Dr. J. Mackenzie Davidson. The results of the treatment appeared to be excellent in most of the cases I had seen, but the disease was of small extent in all of them. The only instance in which radium had been used for epithelioma was that of a gentleman in whom a chronic ulcer of the inside of the cheek, in the midst of long-standing leucoplakia, had been cured by radium. The application had been followed by a good deal of superficial inflammation, but the ulcer had healed well, and the scar was good. The ulcer recurred, for the patient would smoke several cigars a day. It was again treated with radium, but did not improve, and Dr. Mackenzie Davidson advised him to ask me to remove it. But he persisted in desiring the application of radium, which was used under protest until the ulcer became an epithelioma and the glands of the neck became affected.

In September of last year (1908) I attended the meeting at Brussels of the International Society of Surgeons, of which Professor Czerny was President. There I saw Dr. Abbé's (New York) models of malignant disease before and after treatment with radium, and I came to the conclusion that if he could cure such cases as these appeared to me to be, he must be able to use radium with much greater success than any person in London. He also exhibited a model of the tongue of a patient with very severe leucoplakia and ichthyosis, and there was a label by it to say that it had been cured by the use of radium. I was very much struck with this, for I have never seen or heard of the cure of such a condition either in this country or in any other. It is regarded as an intractable condition, and that is the opinion I have myself formed of it after some 25 years' experience. I therefore asked Dr. Abbé to show me the model of the cured tongue, telling him that I had always thought the condition incurable, and adding that if he could convince me he had cured such a tongue as his model suggested I would send patients from London to New York to be under his care for leucoplakia. His reply was that this tongue had been incidentally cured during the treatment of a severe condition of the cheek, and that he had no model of it. I was not satisfied with his reply, and spoke to one or two of the American surgeons with whom I was acquainted in Brussels, begging them to tell me what they thought of this case particularly. One of them told me he had asked Dr. Abbé the same question as I had done and was no more satisfied with the reply than I had been. I was informed by another New York surgeon that Dr. Abbé was more enthusiastic over radium than his colleagues were.

In the beginning of February of this year (1909) Sir Frederick Treves delivered a lecture on Radium in Surgery at the London Hospital, as an introduction to the announcement of the foundation of a British Institute of Radium. In that lecture he said: "With regard to epithelioma of the tongue and epithelioma of the lip, they are cured by radium. You say, of what degrees? I acknowledge that the cases are in the early stages of epithelioma; but they are epitheliomata that are ulcerating, and that, so far as we know, can yield to no other treatment except that of operation." This statement was so contrary to my experience that I wrote to Sir Frederick Treves and questioned him on the certainty of the diagnosis in the cases of cure of reputed epithelioma, and wondered why it was that we had had no success in such cases in London. I also mentioned my interview with Dr. Abbé. Sir Frederick Treves replied that he had no doubt of the diagnosis of the cases in question and was sure that they were genuine cases of epithelioma. He also told me that the reason of the lack of success in London and the reason of success in Paris was that radium was applied

by means of the disc in Paris, by means of the glass tube in London, and that Dr. Abbé employed the method by the disc and was therefore able to obtain such results as he had exhibited. Now for the cases I have actually seen.

CASES OF EPITHELIOMA.

CASE 1.—At the end of September, 1908, I was consulted by a gentleman, between 50 and 60 years of age, on account of what I diagnosed as a flat warty epithelioma of the inside of the cheek, about 1¼ inches across. There were two little patches of leucoplakia, and a history of long-standing "something wrong" with that cheek. I thought I could detect a deep-seated but small gland at the angle of the jaw. I advised him to have the ulcer of the cheek and the glands removed, and gave him the names of two surgeons, so that he might select one of them for the operation. I heard afterwards that he went to see both of them, and they had agreed with me in the diagnosis of the disease. It was finally arranged that one of these gentlemen should perform the operation. Some two or three months later, however, I met the selected surgeon, who informed me that the patient had been advised to go to a well-known dermatologist for treatment by means of radium, so the operation had never taken place.

After the publication of the lecture of Sir Frederick Treves I thought I should like to know what had become of Case 1, particularly as the specialist under whom he had placed himself was known to have been to Paris and to have studied the Paris method of applying radium. I sent for Case 1, who came to see me on Feb 10th, and told me that he had first been treated by ten sittings of 10 minutes each with the X rays in order to "bring the ulcer within the compass of the radium treatment." He had then been treated at longer or shorter intervals by the application of radium nine times for half an hour each time. The last application had taken place at the end of January. No pain had been caused by the applications, and no inflammation had followed them, although there was usually a little occasional pain in the cheek for the first few days after radium had been used. The condition of the cheek quite surprised me. The sore was decidedly less than an inch across, and appeared to be quite superficial. It was more a raw place than an ulcer, but it was still very warty. The surrounding area was beautifully sound and soft, quite different from the scar of an operation wound. I was very much impressed by the improvement which had taken place. The glands were not perceptible.

I determined to follow up the case. In September I again begged the patient to come to see me. He replied that he was under treatment with radium in Paris on account of a "large ulcer which has developed upon the site of the epithelioma and which Dr. D—— assures me will soon be surely cured" I have this morning (Oct. 26th) received a letter from his doctor saying: "He is really no better. The ulcer is quite characteristic of epithelioma, to my mind it is larger—it is coming more towards the mouth. You can see the cheek is swollen externally—I examined the glands, but could not be sure if they were enlarged. ..... He was in great pain and that is why he went to Paris."

CASE 2.—A gentleman, 56 years old, was brought to me from Belgium on April 5th of this year by a medical man who had not only been treating him but who was a personal friend. He had suffered from leucoplakia for many years, and about January or February, 1909, an ulcer formed on the left border of the tongue. He had sufficient medical knowledge to appreciate the nature of the disease, but kept his trouble to himself as he had determined not to have any part of his tongue removed. But at the end of two months he showed it to his medical man, at the same time telling him that he would not have the disease removed. They went together to Paris, where he underwent treatment by radium and was subjected to the influence of the material for 25 hours in many sittings. After his return to Belgium he underwent further treatment with radium, until a gland became enlarged and the tongue became so painful that he could bear it no longer, and was therefore brought across the Channel to consult me. He was in a miserable condition, the fore-part of the left side of his tongue was eaten away by cancer, and there were several easily perceptible enlarged glands. The skin over one of these was red from the recent application of radium. I sent him to a surgeon for operation, from which he died in the course of a few days. It was very severe, for the glands were affected on both sides of the neck, and the tongue was very widely infiltrated.

This man's blood may be said, in a figurative sense, to have been upon his own head, for he concealed the existence of the disease for three months after he was aware of it, and absolutely declined an operation. I asked whether the Paris medical men had expressed either to him or to his Belgian friend and medical adviser an opinion that the case was not fitted for treatment by radium. I was assured they had not done so.

CASE 3.—On June 2nd of this year a gentleman, 70 years of age, was sent to me on account of a small ulcer in the floor of the mouth just to the left of the frænum. It was more a fissure than an ulcer, just under half an inch in length, and was surrounded by an area of induration which might be roughly estimated at one-eighth of an inch in width. It had all the characters of epithelioma, and there was very extensive and widespread affection of the glands, chiefly in the middle line and on the left side. They were hopelessly fixed. There was reason to believe that they had been palpable for nine months, but the ulcer in the floor of the mouth had only been observed for about a month. I cut off the posterior margin of the fissure for microscopical examination and sent it to Dr. G. L. Eastes for a report. The report was to the effect that the disease was malignant, and I agreed with the diagnosis on my own examination. Radium was applied in tube on three occasions. On June 5th Dr. Mackenzie Davidson applied four tubes for 20 minutes, and on June 7th the same four tubes for half an hour. The tubes were of glass and contained in all 59 milligrammes of nearly pure radium bromide. They were covered with tin-foil 0·13 millimetre thick and thin rubber sheathing. The tongue was protected above by means of thick lead. On June 8th another similar application was made for half an hour. I examined the ulcer on June 25th, when it was smaller and less deep, and the edges were decidedly softer. There was no sign of inflammation in or about it. I examined him again on July 2nd, when the ulcer was quite healed and the surrounding swelling had disappeared. The scar was excellent, soft, and supple. As there was a little induration perceptible in the tissues a quarter of an inch below the surface I suggested that one more application of radium should be made. This was done and by July 29th the induration had completely disappeared. The condition of the floor of the mouth was so satisfactory that it was difficult to believe that an epitheliomatous ulcer had ever existed there.

The glands, however, remained enlarged and often gave him pain, so that he determined to go to Paris for radium treatment. On August 17th I received a letter from the operator to whom he was given in charge, telling me that the treatment had been commenced with two tubes each containing 0·05 centigramme of pure radium encased in 2½ millimetres of lead. It was intended to keep them applied for from 12 to 24 hours, probably on alternate days, for a fortnight, but the writer did not speak at all hopefully of the prognosis, at which I was not surprised. In fact, I received another letter on Sept. 30th to say that the patient had died on the previous day from rapid loss of strength and vomiting. The operator said the glands "had undoubtedly diminished in size. ..... All the neuralgia disappeared some weeks ago." Gastric carcinoma was suggested as the cause of death. But as the patient had extensive affection of his glands and was suffering from albuminuria there seemed no reason to accept this explanation. Dr. Mackenzie Davidson told me he had published a case in which vomiting and high temperature had followed the application of radium to an extensive rodent ulcer, and he had attributed these symptoms to toxic absorption.

CASE 4.—A gentleman, 70 years old, was sent to me on account of a small typical ulcerated carcinoma (epithelioma) of the left border of the tongue close to the foliate papilla. It was indurated, but only superficially, and would have been an excellent case for operation had it not been that there were glands enlarged and not very moveable from the angle of the jaw down to the bifurcation of the carotid artery. As the patient was very gouty and diabetic and had smoked a great deal and had been unsuccessfully operated on for cataract a severe operation appeared to be quite out of the question. But I thought radium might be applied to the primary disease and sent him to the dermatologist who had treated Case 1, asking him whether he thought the ulcer

might be cured by radium. His reply was: "There is every reasonable hope that radium will cure it and with very little pain." I have never seen the patient since. But his medical man wrote me on Oct. 8th to tell me that he had returned home and that the disease had made rapid progress both in the tongue and glands. "There is a large protruding ulcerated surface on the tongue." He further told me that Case 4 had had two applications of radium for one hour each time early in July on two following days, and then after a fortnight's interval he had had two more applications of an hour each on two following days.

There have been two or three other cases of epithelioma in which radium has been used with my knowledge or approval, but they were so advanced that success was not to be hoped for, and they ought not to be taken into the account. There is one case of œsophageal stricture, almost certainly malignant, in which great improvement has followed the use of radium, but it is too early yet to speak of cure. Nevertheless, the patient seems to have received sufficient benefit from the application of radium to make it well worth while to have tried it.

The total result thus far is that, out of three cases of epithelioma of the mouth, which were all suitable for a local operation, only one was cured by radium, and that was of so small a size as to have merited the name trivial, if such a term can ever be applied to any malignant sore. In that case, however, the benefit to the patient was so great that it is difficult to exaggerate it. The removal of even so small an epithelioma of the floor of the mouth in a very unsound patient of three score years and ten must have been attended by considerable risk. The wound, if he recovered, might have taken weeks to heal, and he would have been subjected to serious discomfort and a good deal of pain for a long time. If the ulcer had been left, it was liable to enlarge and form a foul and exceedingly painful sore, which would have rendered the remainder of his life a burden to him. Four applications of radium sufficed to cure him without pain, and the cure remained permanent until his death.

On the other hand, two patients whose cases were deemed suitable for radium by the dermatologist who treated them were not cured. Case 4 does not seem to have been benefited. Case 1 appeared to be greatly the better for the treatment at the end of several months, but the improvement did not continue to a cure. The patient has been under treatment for a year; the sore seems to be larger than it was, and I cannot but question the action of those who took him out of the hands of the surgeon at a time when his disease was well within the reach of operation, and there was good reason to hope that the operation would have been successful. Radium, a year ago, was in quite an experimental stage in the treatment of epithelioma. It is so still, for I only know of one undoubted case of epithelioma which has been cured by it in this country. And the reported cures in Paris still lack detail and confirmation, particularly with regard to the extent and depth of the disease.

It is possible that larger quantities of pure radium and longer sittings may cure primary epithelioma in a much more advanced condition. If that be so, even if the glands must be removed by a surgical operation, the gain to the patient will be enormous, particularly in cases of cancer of the lip and mouth. The destruction will be reduced to a minimum, the scars will be better, and the after-results will be far superior to those which are left by operation, to say nothing of the advantage which the patient will gain in the absence of risk to life from the treatment and of pain during it. I hardly dare yet to believe that such results will be commonly achieved, but I earnestly hope so.

Case of Doubtful Nature (? Epithelioma).

Case 5.—A gentleman, aged 60 years, consulted me in July of this year on account of suspected epithelioma of the prepuce. He had been circumcised some 30 years ago but the prepuce had not been separated from the corona and behind it. The left side of the glans was the seat of thick patches of leucoplakia of many years' standing. On this side, also, the edge of the prepuce stuck prominently out at the lower part, and the front aspect of the projection was the seat of superficial ulceration, without inflammation, indolent, pale red, and dry. The whole projection was a little indurated and stiff. The glands were not perceptibly affected. I was not sure whether the condition was actually epithelioma. If he had consulted a dozen surgeons in London it is probable six of them would have diagnosed epithelioma; the other six would have considered the condition not yet epitheliomatous, but almost certain to become so. I am quite willing to believe that it was a young, thin, and dry epithelioma. As excision of the affected portion of the prepuce would not, in my opinion, have sufficed, and it would have been necessary to recommend amputation of the anterior half of the penis, I sent him to the dermatologist who had treated Cases 1 and 4. On Oct. 6th he came to show me what had happened. The suspected epithelioma had completely disappeared, and there was no longer induration or stiffness of the prepuce in the place where it had been. The surface of the glans, which had been the seat of leucoplakia, was covered for the most part with yellowish thick crust, which had peeled off in one or two places, leaving slightly depressed and thin but sound scar-tissue.

Although, in the absence of actual microscopic examination, this case cannot be reported as a case of epithelioma, particularly as it had been, according to the statement of the patient, slowly forming for between two and three years, no one could have undertaken to declare that it was not epithelioma. And I am strongly in hope that it was a case of epithelioma cured by radium.

Cases of Leucoplakia.

Case 6.—A lady, about 35 years old, consulted me in the spring of 1896. She had some elongated areas of thin leucoplakia some distance back on the under surface of each border of the tongue, larger on the left side. I attributed them to her gouty disposition and to the rubbing of her gold-crowned teeth against the borders of the tongue. By my advice her medical attendant snipped them away with a pair of scissors. In October, 1908, the right border remained sound, but an area of leucoplakia had recently formed on the left border. I sent her to Dr. Mackenzie Davidson for radium treatment. A single application of radium was followed, in the course of a week, by pain which endured about ten days. And the surface of the tongue was very sore. I saw the tongue on Dec. 3rd, when the plaque had disappeared, and all signs of inflammation had passed away.

On July 22nd of this year she came to tell me that, the same place having become "sore" once more, Dr. Mackenzie Davidson had again made a single application of radium about July 7th. No pain or inflammation had attended the application on this occasion. There was no sore place or plaque at the time I saw her, but the mucous membrane of that part of the tongue was a little thinner and paler than elsewhere.

Case 7.—In October, 1903, I removed a large part of the right half of the lower lip for a warty epithelioma on the inner aspect, and a second commencing growth just below the angle of the mouth. A flap was turned up from lower down upon and beneath the chin to fill the defect. The glands in the floor of the mouth were widely removed at the same time. They had not been distinctly felt before the operation, but were found to be enlarged when they were removed. Microscopic examination proved epithelioma of the lip (I think in both places), but not of the glands. In spite of all I could do to dissuade him the patient continued to smoke heavily.

In August, 1906, he showed me a considerable area of thick and densely white leucoplakia on the inside of the newly formed lip, extending on to the toothless gum below and behind it. In November, 1908, the area had spread on to the gum, so as to cover a large part of it; the lip was thick and very tender, so that he had been obliged to give up smoking almost entirely. The surface of the new lip inside was very sore (excoriated). In February, 1909, he was much in the same condition, and complained that the lip was always very sore and tender, and that he had been obliged quite to give up smoking. I sent him to the gentleman who had treated Case 1. The patient was very much better in May of this year. The soreness and thickened condition of the lip were almost gone, and the fear of the occurrence of epithelioma in it seemed to have been averted. But the areas of leucoplakia remained precisely as when I had seen them last. I have not seen him since Sept. 22nd, two months after the last application of radium, when his lip was again beginning to be raw and tender here and there, although not nearly so bad as it had been in February. The leucoplakia was not altered.

CASE 8.—About three years ago I "trimmed" the borders of the tongue of a gentleman for chronic superficial glossitis, fissures, little ulcers, and areas of leucoplakia, with a suspicion of malignant disease at one spot. The parts removed were examined by the Imperial Cancer Research, but Dr. E. F. Bashford did not find cancer in them. On several occasions since then I have seen the patient because the mucous membrane below the scar to the left of the middle line has been irritated by the teeth and by the upper margin of a gold plate. Thin leucoplakia formed at this spot, and in the course of this summer there was a superficial chronic ulcer. He was advised to have it treated in Paris, and I thought that radium would cure it nicely. He went to Paris on Sept. 10th, where Dr. D—— took charge of him. Radium was applied for an hour each day for ten days in succession, but I do not know in what strength (Sept. 14th to Sept. 23rd). He told me that the ulcer was quite healed by Sept. 28th. But two days later a similar ulcer formed just in front of where the former ulcer had been. He came to show me this ulcer on Oct. 21st, when I observed that the leucoplakia was just as when I had last seen it. I believe he is once more under radium treatment in Paris, and I hope the ulcer will be soundly healed. It seemed to me that he had been subjected to rather severe radium treatment for the cure of what appeared to be only a superficial indolent ulcer without any sign of malignancy.

(*Note.*—It may be interesting to medical men who are disposed to think that the fees for radium treatment in London are rather large to know that this gentleman told me he had to pay 2000 francs (£80) for his ten days treatment in Paris.)

I do not yet know whether to advise patients suffering from leucoplakia to submit to treatment with radium. The thin area of leucoplakia in Case 6 was certainly removed, but it formed again about the same place within a few months. Of course, the cause had not been taken away, so that the recurrence was due to the continuance of the same conditions which I believe to have been responsible for the first occurrence of the disease.

The thick plaques of leucoplakia in Case 7 appeared to have been quite unaffected by the application of radium, but the plaques on the glans of Case 5 seemed to be in a fair way of being cured with the production of thin and depressed scars. The cure, therefore, if it takes place will resemble that due to superficial excision of the areas of leucoplakia, and I doubt whether the scars will remain sound in the interior of the mouth, where they are subjected to repeated irritation, and perhaps injury.

To sum up. So far, then, as treatment by means of radium in London is concerned, it appears to be admirably adapted to rodent ulcers of small or moderate extent. The application is painless or almost painless. There seems to be very little danger to life or health. The disease seems to be quite cured so far as we can at present judge, and the result is far superior to that which can be achieved by surgery. In cases in which the disease has attacked the bone or has made its way into the tear-duct or one of the accessory cavities of the nose I do not know what radium will do, for I have not seen such a case treated by it.

It is possible, by means of radium, to procure the healing of epitheliomatous ulcers of very small extent and to remove the induration around the ulcers. The cure of such conditions appears to be as satisfactory as the cure of rodent ulcers. In cases of epithelioma of any but the smallest extent, in my experience we are not yet justified in advising patients whose disease is amenable to operation to try the effect of radium unless there are circumstances in the individual case which render an operation inadvisable. So far as associated affection of the lymphatic glands is concerned, I have not yet seen anything which would warrant me in believing that the application of radium to the primary disease, even if it were successful, would avert affection of the glands, nor have I seen any case in which undoubted secondary affection of the glands was cured or decidedly benefited by the use of radium. Whether the application of radium over the glandular area before it is obviously affected will be found by-and-by to exercise a protective effect upon the glands I do not know. At present the glands must be treated, as they have been hitherto, by operation.

The results which I have seen of the treatment of *leucoplakia* and allied conditions lead me to believe that radium only cures them by substituting thin scar-tissue for them, but does not restore the mucous membrane to the condition it was in before the development of the disease. Treatment by means of radium in such cases has, however, the great advantage over surgical removal or the use of destructive agents that it is quite or almost painless, and that no actual inflammation and no open sore are produced by the applications when they are made by experienced operators.

To medical men who are disposed to send their patients to Paris, where there is a much larger quantity of radium than we have here, and where the operators have, in consequence, had a larger experience and are undoubtedly very skilful, I would venture to suggest that they should obtain a written statement from the operator that, in his belief, the case which they take or send to Paris is a suitable case for radium treatment, and is likely, in the opinion of the operator, to be cured by means of radium. Such a course will guard patients and their medical attendants from disappointment which might otherwise occur from an incomplete acquaintance with a foreign language on both sides and will give the operator to understand that the patient is not sent to Paris merely to be treated with radium in the hope that it may "do some good," but with the definite hope and expectation (on the part of the patient, at least) that it will cure the disease to which it is to be applied. The tuberculin boom is still fresh in my mind, when patients in even the last stages of consumption were sent or rushed off to Berlin to be inoculated. Berlin did a fine business while the craze lasted, but many of the patients spent more than they could afford to do on a treatment which was purely experimental, while others died miserably in hotels and lodging-houses.

Harley-street, W.

BRAIN AND MIND.

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IN the crowded curriculum of the medical student, it is impossible to include everything that it is desirable for a practitioner of medicine to know; and it is perhaps not to be wondered at that in it psychology has no recognised place. Yet its problems are the most fundamental of all, and there is no subject that can occupy the human mind which does not rest ultimately upon some assumption in the domain of psychology. Does mind exist apart from matter? Is there any such thing as matter, or is it only a metaphysical assumption? What are the grounds of belief, of certainty, of likelihood? If brain and mind both exist, and are connected, what is the nature of the connexion between them? These are some of the fundamental problems which belong to psychology, and upon the solution that we formally, or, more often, implicitly adopt, depends the whole fabric of our conduct. Yet so little does a study of psychological problems enter into our schemes of education, that it is doubtful whether the majority of educated men and women do not believe that the colour of an object is in the object; though they would hesitate to assert that the sound of a gong is in the gong, and would probably deny that the prick of a pin is in the pin. That the three cases are on all fours, as the lawyers say, has probably not occurred to them.

Mind is often spoken of as a "function" of the brain. It may be, in a mathematical sense, a function of cerebral operations, though it would be an unwarrantable application of a term that has a precise meaning, to make an assertion of whose truth we are ignorant; but in a medical or physiological sense, mind is not a function of the brain. By the function of an organ we mean, or should mean, in medicine, the task that the organ performs in the economy of the body: we mean the physical effects of the activity of the organ. Thus, the function of bones is to give rigidity to the body, to give points of attachment to muscles, and protection to delicate structures; the function of muscles is, by contraction, to produce movements; the function of glands is to secrete and elaborate fluids; and the function of the brain is to receive, store, and liberate motion. The reception, storage, and liberation of motion is a physical, not a mental process. It is true that the function of the brain is not only to receive, store, and liberate motion, but to receive it discriminately; the motion of molar impact and pressure in one place, the motion impressed by sound waves

in another, the motion impressed by ethereal waves in another, and so on. And its function is not only to store, but to store discriminately; to separate and recombine streams of motion; to divert them here and there; to accumulate here and discriminate there. And its distributory function is not merely to pour out motion at large, as water is poured from a jug, but to distribute it to the various organs in definite quantities and proportions, so that each organ shall be governed to perform just so much function, for just so long, as is required,—the muscles to contract so as to move the limbs in certain directions and in a certain order; the glands to secrete at certain times and in certain quantities; and all the organs to take their proper share of the metabolism of the body. But for the regulating influence of the nervous system in the growing body, the legs would be of different lengths, and the arms of different sizes; and this we find happens when the nervous influence is interfered with by accident or disease. These then, are the functions of the brain; and, in enumerating them, no word has been said about any mental process. It is often supposed—at least people speak and write as if they supposed,—that there is one part of the brain for these purely physical and physiological functions, and another part in which mental operations go on. But a little consideration will show that this cannot be so. The whole of the brain is constituted fundamentally alike. The neurons in one part have certain differences from the neurons in another, but throughout the brain we find neurons and nothing else, except their supporting framework and their nutrient vessels. If the neurons in one part store and carry motion, surely so do the neurons in another part. The functions of the different parts of the brain differ, no doubt, in complexity, in elaborateness, in the part of the body that they regulate, and so forth; but, since the structure is fundamentally similar, the function also must be fundamentally similar. One part actuates the movements of the heart, another the movements of throwing a stone, another the movements of shoving through a crowd; but all parts have for their function the production of physical effects. Try to picture to yourself how the neurons of the brain —the branching fibres with their regulating cells and nuclei —can produce or contain a sound of high C; the aspect of a cathedral; a smell of putridity; an emotion of anger, or a stomachache. It is impossible. You might as well try to tie these mental states up in a bundle with red tape and lock them up in a box. They are not in the brain; they are not in the neurons; they are not in the cells; they are not in the fibres. They are in the mind; and the mind is a universe by itself, distinct and disparate from all material things. There is no community of nature between the vibration of molecules in the neurons of the brain and the thoughts, passions and volitions that occupy the mind. There is an utter separation: between the mental and the material there is a gulf that no imagination can bridge.

Yet the brain and the mind are, in our experience, inseparably bound up together. We know of no manifestation of mind except in animals with a nervous system; and, the more elaborate the nervous system, the higher, as a rule, the type of mind. Agents purely physical, applied to the brain, produce startling effects on the mind, and even annihilate it altogether, temporarily or permanently; and no purposive action of the body is undertaken except after, and as a result of, that mental action that we call exerting the will. Notwithstanding, then, the gulf, impassable to human knowledge, that exists between the universe of matter and the universe of mind, the mind does appear to be conditioned by the action of the brain; the body does appear to be set in action by the operation of the mind. What, then, is the solution of the puzzle? What is the connexion between them?

The most truthful answer is that we do not know, and there is little likelihood that we ever shall know; but three hypotheses have been advanced to account for the connexion.

In the first place it is said that the processes in the brain produce the mental changes—that there are two sets of changes, mental and bodily, and that the latter are the cause of the former. In proof are adduced the many and incontestable instances of changes in the mind following immediately and directly on changes in the body. A pin is stuck into my leg; the nerve-currents started thereby pass up to the brain and there produce a feeling of pain. If every mental change were preceded by a bodily change, this hypothesis would be plausible; but it fails altogether to account for the fact of volition, in which, as far as it is possible for us to judge, the bodily change does not precede, but follows the mental operation. This hypothesis is known as dualism.

The second hypothesis is that, when a brain process conditions a mental change, there are not really two changes, but only one. The brain-change and the mind-change are two aspects of one process, two sides of the same shield, separate to us because of the limitations of our mental capacity, but in reality but one. This is fascinating at first view, but when we look into it we find that it is a purely verbal proposition; that is to say, we are not capable, as indeed the hypothesis admits, of realising in thought the state of things which the words purport to express. It is a purely verbal explanation, and in reality is no explanation at all. This is what is commonly called monism.

Lastly, there is in the Leibnitzian hypothesis of parallelism, or pre-established harmony. By this hypothesis it is supposed that the two sets of changes go on together, always parallel to one another and simultaneous, but that there is no connexion whatever between them except that of simultaneity. The mental changes answer to the bodily changes somewhat as the movements of a man's shadow answer his movements, but without any relation of cause and effect between them. They happen together because the Almighty, when He attaches a mind to a body, ordains that they shall happen together, just as two clocks going at the same rate would move precisely together without being in any way connected. It is clear that this explanation explains nothing, and for none of the three can any reason be adduced why it should be adopted rather than the others.

But although we cannot explain the connexion between mind and brain, we can gain an inkling, or at least get the affair before our minds in a fairly intelligible form, if we look upon mental processes as an epiphenomenon imposed on the material processes of the brain. When an impression is made on the body from without, either by material contact, or by sound waves or light waves, or in any other way, a nerve current is set up which flows from the part impressed to the brain. Hence, after much wandering and many changes, it issues at length as an efferent current to the muscles, and produces a bodily movement. The circle of causation is closed. If our means of measurement were adequate we should find, on the principle of the conservation of energy, that every unit of motion was accounted for by material changes of position, and none was left for mental effects, supposing such effects possible. But at the turning point of the current occurs an epiphenomenon. Just as, in an electric circuit, the current flows completely round, but at the point of greatest resistance, where the flow is most impeded, a new phenomenon appears in the shape of a glow of light, so in the nerve circuit, the excess of resistance at one place is the condition of the appearance of an epiphenomenon, a mental change. The parallel is faulty, because in the electric circuit the epiphenomenon occurs at the expense of a portion of the energy, which disappears from the circuit; while in the case of the brain we do not know, nor can we conceive, that any portion of the energy is converted into mind; but the illustration is the nearest that the limitation of our faculties permits us to frame, and it is at any rate a real help in dispelling the notion that the production of mind is a function of brain, in any sense in which the term "function" is used in medicine.

Wimpole-street, W.

BRIGHTON AND ITS CENTENARIANS.—The town of Brighton is noted for its centenarians. For some time it has been producing them at the rate of about three in two years. The latest addition to the venerable roll is Mrs. Frances Norman, who on Nov. 5th attained the age of 100 years. She is the oldest inhabitant of the Brighton workhouse, and Mrs. Sinden, who occupies the bed next to Mrs. Norman, is only three and a half months her junior. Mrs. Norman is a native of Brighton and hardly ever has been out of the town. Although very deaf, she is in remarkably good health and has an excellent appetite. Brighton possesses three centenarians at the present time, including Mr. Jeremiah Simmons, the oldest gardener, who will be 102 in March.

CIVILISATION IN RELATION TO THE ABDOMINAL VISCERA, WITH REMARKS ON THE CORSET.

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WE hear a great deal of civilisation, as it is called, and the enormous advantages that accrue to humanity through its influence. Perhaps the most apparent advantage is the safeguarding the individual from the possibility of damage by his fellow creatures. While I would not wish to dispute the benefits which are derived from it, I would like to call your attention to the fact that there are many very serious disadvantages associated with it. These deal chiefly with the mechanical relationship of the individual to his surroundings. I do not propose to do more than call attention to the number of conditions which very materially shorten the life of the man who makes his living out of laborious pursuits, and limit in a corresponding manner his capacity for the enjoyment of life. These physical conditions represent the fixation and exaggeration of attitudes of activity, and are all progressively depreciatory, since they necessitate a shortened life, not only of the joints affected, but of the entire body. Again, the fixation of attitudes of rest, such as lateral curvature, flat-foot, knock-knee, &c., has a similar damaging effect, both on the altered joints and on the body generally, and materially affects the length of life and the capacity of enjoyment of the individual.

What I wish particularly to call attention to is the disadvantage that the individual experiences from the habit of keeping the trunk constantly erect. This habit of keeping the trunk erect from morning to night, whether the erect or sedentary attitude is assumed, is almost universal in the condition of civilisation which exists with us in the present day. It is necessitated by our habit of using chairs and by the fact that circumstances and surroundings do not lend themselves to our lying or squatting on the floor. The erect posture affects men and women differently, for the reason that the abdomen of the woman is relatively much longer than that of the man, while the female thorax and pelvis differ materially from the male. The abdominal wall of the woman is also rendered less efficient by pregnancy and by the support afforded by her dress.

To reiterate, I would formulate three general principles. When an attitude of activity is assumed on a single occasion certain tendencies to change exist. If this attitude is assumed habitually these tendencies to change become actualities, and the skeleton varies from the normal in proportion to the duration and severity of the attitude. The skeleton is first fixed in the attitude of activity, and later that attitude is progressively exaggerated. The same is true of an attitude of rest assumed on a single occasion and also when assumed habitually. The skeleton of the ordinary or normal individual rests upon a combination of the tendencies to change consequent on the assumption of complementary attitudes of activity and of rest. Now, when the trunk is erect, there exist tendencies to the downward displacement of the viscera contained in the abdominal cavity. The several viscera are influenced by this tendency in a varying degree in proportion as they themselves vary in weight. For instance, the stomach and the large bowel are probably the most variable in weight, since a quantity of material collects in them and passes along at a comparatively slow rate. The more or less fluid nature of the contents of the large bowel assists in its accumulation at certain points, as, for example, in the cæcum and in the middle of the transverse colon, while in the stomach the pressure is exerted on its convexity.

The mechanics of the abdominal wall are such that the muscles exert a firm pressure on the viscera and tend to prevent their downward displacement. Still, in the abdomen, as well as in the body generally, the anatomy is so arranged that there must be a suitable relationship between the attitudes of activity and those of rest, or, in other words, that the erect posture, in which the viscera tend to drop, must be alternated sufficiently with a position in which all strain is taken off the viscera and the tendency for them to drop is in abeyance. This latter may be obtained by the assumption of the recumbent or of the squatting posture. In the former the viscera tend to displace upwards by their own weight, while in the latter they are forced upwards by the forcible apposition of the thighs. In our state of civilisation the recumbent posture is only assumed at night, and even then only partially, since the heavy buttocks and thighs sink deeply into the bed. The squatting posture, so common among savage races, is never employed. Therefore with us, from an early hour in the morning till a late hour in the evening, or for at least 16 out of the 24 hours, the tendency to drop of the viscera exists, while during the night this tendency is more or less in abeyance, but in a degree below the normal of the savage.

Nature deals with this modification of the normal mechanical relationship of the individual to its surroundings in precisely the same way as it deals with any specialised mechanical function, whether active or passive. First, as regards the large bowel or cesspool of the gastro-intestinal tract: it attempts to oppose the downward displacement of the cæcum into the pelvis by the formation of peritoneal bands, not inflammatory in origin, but functional, if I may so use the term, which pull upwards the hepatic flexure and secure it with as much firmness as possible in the upper and back corner of the right loin. Acquired bands secure the outer surface of the ascending colon and cæcum in a similar way to the peritoneal lining of the adjacent abdominal wall. They also grasp the appendix, commencing at its base and forming a new mesentery, which is more or less distinct from its normal mesentery. In this way a portion of the appendix takes on the function of a ligament of the cæcum, tending to oppose its downward displacement. Unfortunately for its new function, the appendix being a hollow tube whose mucous membrane secretes fairly abundantly, it is ill adapted for this purpose. The pull exerted by the heavy loaded cæcum upon such of the proximal portion of the appendix as is fixed by acquired adhesions to the abdominal wall produces a kinking of the appendix at the junction of the fixed and mobile portions. In consequence of this secretion tends to accumulate in the distal portion of the appendix and concretions form in it, or it may become more or less acutely inflamed, producing varying conditions of what is called appendicitis. And unluckily for the right ovary, the appendix becomes a near neighbour, and the irritation and annoyance of the ovary may result in a cystic degeneration of that structure. Again, the recurring menstrual engorgements of the ovary serve also to encourage the appendix to manifest the effects of its mechanical disability at these periods.

The transverse colon, especially when loaded, tends also to fall into and occupy the pelvis. The abnormal acquired fixation of the hepatic flexure in the right loin and of the splenic flexure in the left loin help to oppose the downward displacement. Some of the load is transmitted to the ascending and descending colon by means of acquired adhesions, which connect the descending and ascending portions of the transverse colon respectively to the ascending and descending colon. Above the connexion of these tubes is direct, exaggerating very much the kink at the flexures. Lower down the strain is transmitted along an acquired mesentery which stretches from one to another. The greater portion of the load is transmitted along the great omentum to the convexity of the stomach, which may itself be loaded up at the same time. This abnormal drag on the convexity of the stomach is met by the formation of peritoneal adhesions or bands, which attach the upper and anterior aspect of the pylorus to the under surface of the liver. The upper attachment commences in the vicinity of the transverse fissure and extends forwards along the under surface of the liver, not infrequently attaching the gall-bladder or its duct. The effect of this upward drag upon the pylorus and of the pull on the convexity of the stomach is to interfere with its normal functioning and to result in its progressive dilatation. The strain on the stomach is experienced along its upper margin, and especially on either side of the pyloric attachment. It would appear that in the male subject the tearing strain is greater on the upper aspect of the first piece of the duodenum, while in the female it is greater on the proximal side. This varying distribution of strain would be readily accounted for by the different form of the abdomen in the two sexes. Again, if the liver itself is mobile and displaced, and the

pylorus no longer depends for support on it, the point of strain in the concavity of the stomach approaches the œsophageal attachment in a degree proportionate to the downward displacement of the liver. The importance of these points of strain is that in the presence of auto-intoxication these two factors produce engorgement of the mucous membrane, its excoriation, ulceration, and later its infection by cancer.

The descending colon acquires a connexion to the peritoneum lining the abdominal wall external to it, partly to fix it, and partly to transmit the strain exerted by the transverse colon through it. The loop formed by the sigmoid section of the large bowel falls into the pelvis and struggles with the cæcum, the transverse colon, and pelvic organs for the mastery. As the contents of the sigmoid are fairly solid, this piece of gut is a very unpleasant and obnoxious companion. Therefore Nature endeavours to fix it in the iliac fossa as a straight immobile tube connecting the descending colon with the rectum. This is effected in the manner already described—namely, by the development of acquired bands of adhesions resembling peritoneum in appearance. These tags connect first the outer surface of the meso-sigmoid and later the outer wall of the sigmoid to the iliac fossa, till finally a straight fixed tube, whose muscular coat is comparatively thin, with a partial peritoneal covering, replaces the original mobile loop. The left ovary is in immediate relationship with the outer aspect of the meso-sigmoid, and very frequently becomes involved in the tentacle-like peritoneal processes fixing the meso-sigmoid and later the sigmoid. Later it becomes embedded in the adhesions and then completely surrounded by them. After a time the ovary becomes cystic and enlarged, when it forms around itself a serous covering so that it moves freely in a cavity. This covering gives way, and when the aperture is sufficiently large the cystic ovary escapes. It continues to enlarge and elevates the cæcum, transverse colon, and stomach, and to a great extent meets the disabilities consequent on intestinal stasis, of which it is itself in this instance both the effect and the cure. Unfortunately, these cystic ovaries are more often malignant than was originally supposed. In a large number of cases in which I have removed large cystic ovaries I have been able to demonstrate, beyond a shadow of a doubt, the presence of the nest or cavity in which the cystic ovary grew.

In a certain proportion of cases the acquired tags or bands of peritoneum do not grip the meso-sigmoid uniformly owing to the escape of the centre of the loop. In this case they attach only the extremities of the loop, approximating them to one another and kinking both. In consequence, an obstruction exists at the junction of the descending colon and sigmoid, and again in a more severe form at the end of the sigmoid. In consequence of the latter obstruction the loop becomes abnormally large and nature's efforts being only partially effective produce a condition which is infinitely worse than the normal loop, and a so-called volvulus results. The fixation of the sigmoid as a straight tube is unfortunately associated with a diminution in its calibre and in its muscularity, and irritation, abrasion, ulceration, and cancer of the mucous membrane result. In some instances abscesses form in or about the wall of the fixed sigmoid in consequence of the traumatism to which it is habitually exposed from the passage of its contents being rendered difficult by its fixation and limited calibre and muscularity. Associated with the intestinal stasis are the very serious symptoms that ensue from the absorption of toxins into the symptom.

The earliest feature is the inhibition of the respiratory centre, and accompanying this, and apparently consequent on it, is the very definite enfeeblement of the circulation. These patients depend more or less completely on their diaphragm for obtaining enough oxygen to carry on their mechanical relationship to their surroundings, which becomes more and more modified as the condition progresses. This brings about the several resting postures with which we are all so familiar and which we attempt to cure by exercises alone, regardless of the factor which produces them. Their resisting power to the entry of organisms is subnormal and the organism which most commonly effects a foothold is tubercle. The younger the subject the more readily does tubercle appear to be able to invade some tissue damaged by traumatism. The pulse is very feeble and soft. While the trunk is fairly warm, a hand passed over the shoulder of a toxic patient comes very abruptly at the level of the insertion of the deltoid on a cold zone, and this coldness becomes more marked as the hand descends to the fingers. The skin covering the back of the upper arm is reddish-blue, very thick and gelatinous in appearance and consistence. It is not infrequently rough from the presence of large prominent papillæ. This condition causes much distress to the mothers of girls who wear short sleeves. The skin of the forearm is bluish and marked into islands by lines of a darker hue which correspond to the superficial veins. The hand is mottled partly by blue, partly by yellow patches. The sensation imparted to the hand of the observer by that of the toxic patient is unmistakable. It is cold and clammy, and moist on its palmar surface. The ears are also bluish and feel cold, as also does the nose, but to a much less degree. These symptoms vary considerably with the surrounding temperature, but are readily recognised in the warmest weather.

The pigmentation of the skin in these toxic people is a very marked feature. Like many of the symptoms which result from intestinal stasis, but in a greater degree, it varies with the colour of the hair. While dark-haired people show pigmentation in a very marked manner, those with red hair show it slightly or not at all. In some peculiar manner red-haired people appear to possess a comparative immunity to the effects of intestinal stasis. Except for the face, the areas that show pigmentation most conspicuously are those exposed to friction, such as the inner aspects of the upper parts of the thighs, with the adjacent opposing surfaces of the buttock, the spines and abdomen where the corset or dress presses, the axillary folds, the bend of the elbow, and the neck. Pigmentation commences in the eyelids, spreads over the mouth, side of the nose, and later over the cheeks.

Loss of flesh is a very serious symptom and is productive of necessity of many secondary troubles. In the pelvis the loss of fat aids in producing the elongated contracted cervix uteri and the flexions of the uterus which are so commonly present in these cases. In the loin it removes that elastic support which keeps the range of movement of the kidney in what is regarded as normal. The loss of fat in the face and neck produces an appearance of age, distress, and disappointment which is most pathetic, particularly in the young subject. The loss of muscularity is shown in a complete want of tone, the muscles being flaccid and inelastic. In the case of the abdominal muscles this is particularly serious, since one important factor in controlling the position of the viscera is lost more or less completely. The individual is also unable to lead an active physical life because of the poor muscular development. The muscles are not only small and feeble, but become very soft and friable, so that they tear readily, and when sutured yield and afford no security to the ligature. The condition of the breasts is also a very important one. First, the upper and outer zone of the left breast, and later the same portion of the right, show changes. In the young subject they become hard and nobbly, and may be sore and painful at the menstrual periods. Later in life they develop a cystic change, which may be painless or may be associated with attacks of pain owing to the distension of one or more cysts. Still later these degenerating breasts are very liable to develop cancer. Though the degenerative change commences in the upper and outer zones it may spread to the entire breast. It is very much more common in the virgin, and only arises in the married woman when intercourse is abstained from or is very irregular. These toxic people have very little or no sexual appetite, just as they lose their appetite for food and even hate the sight or smell of it. Perhaps the most interesting and accurate description of the influence of intestinal stasis on the sexual appetite has been written by Rudyard Kipling in "The Light that Failed." I do not think Kipling knew that his heroine was affected by intestinal stasis and probably constipated, but he describes an individual with that accuracy of observation and power of description in which I believe he has no equal. I need not recall the red-haired companion of the heroine, as I am sure all are perfectly familiar with the characters in the novel.

Perhaps one of the greatest of the many great men of whom America can boast was Brigham Young; he by irrigation converted a very poor district into one of the most fertile of the United States. He also attempted to popularise polygamy, and his efforts in this direction were met by a success almost equal to those in the direction of agriculture. I am unable to form any definite opinion as to how his action was

influenced by the knowledge of the influence of intestinal stasis on women, and the benefit which these people derive from matrimony. His views on this subject certainly did not meet with encouragement in the United States, partly, I suppose, because of religious or legal objections, and probably to a great extent from the ignorance of the public and even of our profession on the subject of intestinal stasis. I am inclined to think that when women know more about the physiology of life they may exert some influence on legislation. This is more likely to develop, in the first instance, in the United States, where both men and women hold broader views and are less tied by creeds and tradition than they are in the old world.

The mental condition which is brought about by auto-intoxication is most distressing. While it renders the subjects miserable, and unable to concentrate their attention on work or pleasure or to control their tempers, it makes them most unpleasant companions. An alcoholic woman may be cheerful under the influence of her drug, but in no circumstance does the toxæmia of intestinal stasis produce other than a depressing influence on the mind and on the body generally. Medical men are very fond of calling this condition neurasthenia. These patients readily become melancholic. They frequently suffer severely from headache, either continuously or at intervals, and they awake in the morning with a headache, feeling they have obtained no rest or advantage from their sleep, and that they are just as tired and exhausted as when they went to bed. The world seems always chill and gloomy to them, quite apart from the intestinal pain and discomfort which they so often experience. My friends have often said to me that they were sure patients would never submit to such a serious operation as removal of the large bowel. They forget that to these sufferers life has no attraction, and the risk of the operation at least affords them a chance of escaping from it. I do not think that any patient has expressed to me the slightest anxiety on this score, but has most willingly grasped the opportunity of parting with his other troubles at all costs and at the earliest opportunity.

The patients usually suffer from abdominal symptoms, varying from a colicky pain due to obstruction at a flexure or at the sigmoid, or to a flatulent distension of the stomach or intestine due to decomposition produced by the delay in evacuation of the contents, or to the presence of a pancreatitis or of gall-stones. These conditions have resulted, partly from a direct infection of the pancreatic or biliary ducts by organisms from the small intestine whose level in the small intestine has been materially raised by stasis, and partly from a reduced resisting power to organisms consequent on the auto-intoxication. This infection of the pancreatic and biliary ducts does not appear to take place in such cases of intestinal stasis as arise early in life. I have never seen it in patients in whom loss of flesh has been a marked feature before 20 years of age. Infection of the gall-bladder and later of the pancreas arises in stout patients who develop intestinal stasis at or beyond middle life. It would seem that the loss of flesh and of vigour consequent on the toxæmia of intestinal stasis so affects the mechanics of the gall-bladder as to produce an accumulation of bile in it and in association with the infection of the ducts to determine the formation of stones in it. Here again intestinal stasis is responsible for an inflammation of these structures followed later by a cancerous infection.

I have endeavoured to indicate the importance of the fall of the viscera in the erect posture. Obviously the most effectual means of meeting this condition is by the exercise of a sufficient pressure exerted appropriately on the lower abdomen. For a long time women have been in the habit of wearing corsets for the purpose of supporting their dress and of affording attractive outlines to their bodies. The English corset is disastrous in that it exerts a constricting encircling pressure on the abdomen about the lower costal margin and exaggerates the tendency to downward displacement of the viscera. The straight-busked French corset is much less harmful, and if skilfully made and applied serves to exert a moderate pressure on the lower abdomen. The corset that is most efficient is one that, while exerting a firm and constant pressure in a backward and upward direction on the abdomen below the umbilicus, leaves the upper portion of the abdomen quite free. Owing to a want of knowledge of the pathology of intestinal stasis the corset has not received the attention it deserves, so that by far the most important factor in the treatment of intestinal stasis and of its effects has been left in abeyance. I would strongly urge its therapeutic value on the medical profession as being the most effectual means I know by which the trouble to which I have called attention in these remarks may be avoided or mitigated.

Cavendish-square, W.

ON RHYTHMIC INTERRUPTERS FOR USE IN ELECTRO-THERAPEUTIC WORK.

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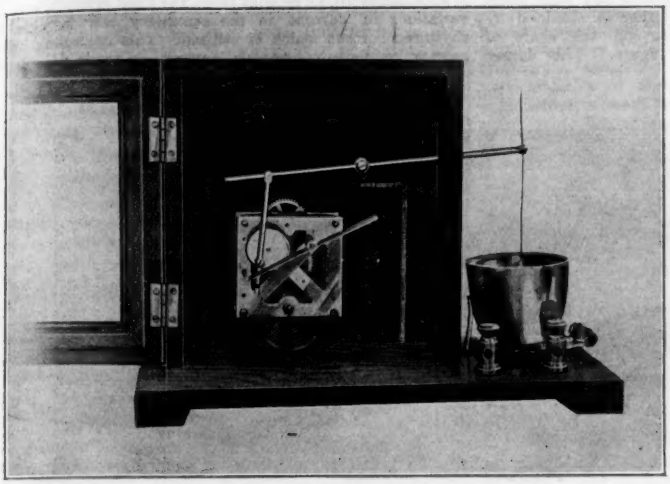
THE advantage of using regularly varying currents in many of the procedures of electrical treatment is gradually becoming more widely recognised, and although such currents have not yet come into general use, I consider that they are shortly destined to do so. One of the causes which have delayed their adoption has been the difficulty of obtaining apparatus for providing regularly varying currents, but this has now been overcome.

During rhythmical electric stimulation the tissues stimulated are given recurrent intervals of repose in the course of the treatment, and time is thus given for renewal of blood-supply and fatigue is prevented. A sustained stimulation without any intervals tends to induce fatigue quickly, particularly in weak or paralysed muscles, and it is probable that harm may be done by electrical applications which set up a sustained tetanisation in such muscles. If experimental proof were needed of the value of rhythmic stimulation, it is to be found in the experiments of Débédat upon the muscles of young rabbits. He showed that rhythmic stimulation of the muscles of one hind limb for 10 minutes daily caused, after 20 days, an increase of 40 per cent. above the weight of the corresponding untreated limb. The current used was that of an induction coil. With continuous current also applied rhythmically the increase was only 18 per cent. When similar applications, but with no rhythmic intervals, were used the gain in weight was *nil* both for interrupted and continuous currents. Bordier, working with human subjects, has obtained similar proofs of the good effect of rhythmic currents, for he reports an increase in girth of half an inch in the arm after two months of rhythmic stimulation.

By the term "rhythmic interrupter" is meant a mechanical device for turning currents on and off in a regular periodic manner, and there are two main varieties of rhythmic interrupter, giving different effects, and both are valuable in medical treatment. In the older type the current is simply switched on and off at a uniform rate, the change from "on" to "off" being abrupt; while in the newer type there is a gradual growth of current from zero to its maximum, followed by a similar gradual decrease to zero again. This is the most generally useful type of rhythmic interrupter, but the first type requires some brief notice, too. It will, perhaps, suffice to say that for sudden turning on and off of current a simple metronome with wires dipping into mercury cups and out of them fills the requirements completely. This apparatus is well known in physiological work and is known as Kronecker's (more correctly Bowditch's) metronome. This type of rhythmic interrupter, in one form or another, has been in use since the very early days of electro-therapeutics. It is of very great utility in electrical diagnosis, and I have found it valuable in the treatment of wry-neck and of other spasmodic affections, and in functional aphonia. It appears that for these cases the steady rhythm of the make and break has a psychological effect of a useful kind, and when treating functional aphonia I insist on the patients counting in time with the beats of the instrument, with the same object. With this metronome the rate of the rhythm can be varied within sufficiently wide limits, and the duration of each period of flow of current can be regulated by adjustments of the mercury cups and the dipping wires to permit of the dipping wire to plunge either deeply or slightly, as desired.

FIG. 1.

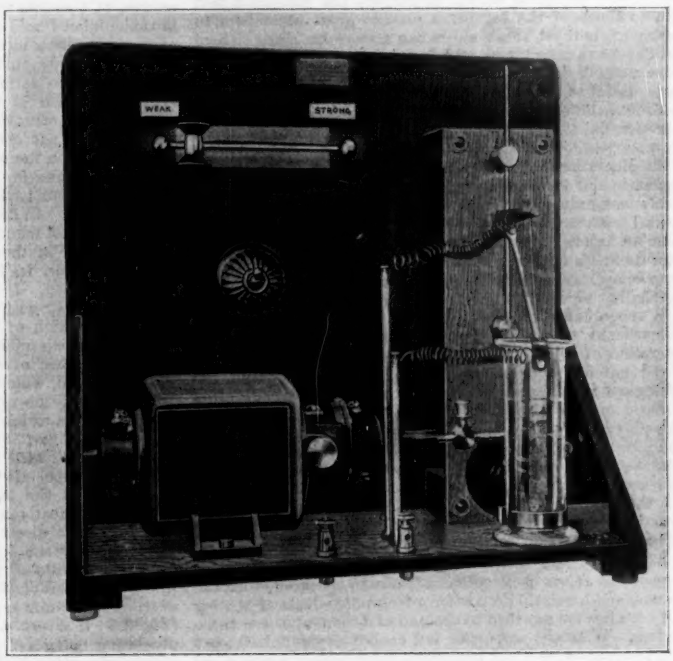


The second type of rhythmic interrupter—namely, that in which the current is made to rise slowly from zero to a maximum, and again to fall slowly back to zero—is the type which is more particularly valuable for many forms of electrical treatment. To effect this gradual change is a matter of difficulty, but this is overcome in the apparatus about to be described. (Fig. 1.) It consists of a train of clockwork which communicates an up-and-down movement to the end of a horizontal arm, and this arm carries at its end a vertical platinum wire which in its excursions dips down into a cup of water, penetrates nearly to the bottom of the cup, and then rises again until the extremity of the wire almost emerges from the surface of the water. The current passes from the wire to the cup through the water, and the resistance of this part of the circuit alters with the depth of immersion of the wire, and consequently the current passing through the circuit varies proportionately and continues to vary so long as the movement up and down of the platinum wire continues. The greater the range of resistance in the cup the greater is the range of the current through the patient, who is connected up in the circuit in such a way that the current passes first through the interrupter and then onwards through the patient. To increase the range of resistance in the cup a small glass funnel is inverted in it, and the platinum wire moves up and down in this inverted funnel. When the point of the wire is at the top of its excursion upwards its point, though still immersed, is in the stem of the inverted funnel, and the resistance then is high and the current small. On the other hand, when the wire has descended to its lowest point it lies close to the metal of the cup, and is surrounded by a wider area of fluid, and the resistance is low, and the current, therefore, is large. It is easy, with this little contrivance, to have a current varying rhythmically between 1 and 10 milliampères through a patient, and this gives as wide a range as is usually required. The rate or periodicity should be of about one complete cycle in four seconds or 15 per minute.

As the amplitude of the range of current through the patient depends upon the amount of the resistance which can be interpolated by the excursion of the moving wire, it follows that the liquid in the cup should have a high resistance and not a low one. To add salt to the water decreases the range of current very much. Tap water (or, better still, distilled water, by reason of its higher resistance) is the proper fluid to make use of in the cup. In order to adjust the platinum wire it is made to slide through a vertical hole at the end of the horizontal arm and can be clamped when in position, the best being when it can almost touch the bottom of the cup at the end of its downward range, and almost emerges from the surface of the water at its topmost position. This mode of fixing the platinum wire also permits of its easy withdrawal for cleaning, and the metal cup is also free of all fixed connexions for the same reason. The current passes from the base of the cup to a metal saucer on which the cup stands, the cup and the saucer being made of a nickel crucible and its lid, which are inexpensive and eminently suitable. I have used a home-made apparatus of this kind for a number of years, the original instrument having been contrived out of a clock work photographic plate rocker. With this device either continuous or interrupted or alternating current may be regulated.

Fig. 2 shows a more massive apparatus of the same

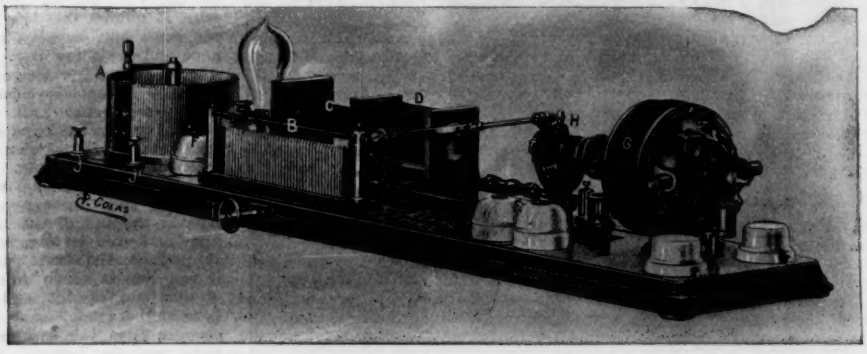
FIG. 2.



kind driven by an electric motor, which is in use in the electric department at St. Bartholomew's Hospital for supplying rhythmic current to the electrical bath-room. It supplies five baths and works for several hours a day with great smoothness. The requisite slow motion is obtained by means of a worm wheel and gearing on the shaft of the motor, as can be seen in the figure. This larger apparatus gives a sufficient range of variation without the need for the inverted funnel used with the smaller apparatus, and a glass cylindrical container is used in place of the nickel cup.

Another very ingenious apparatus for the production of rhythmic currents is an instrument in which a small electric motor operates a crank which causes a secondary coil to slide to and fro upon guides over a primary coil in which an interrupted or alternating current is circulating. (Fig. 3.) The current in the moving secondary coil varies in strength as it approaches to, or recedes from, the fixed primary, and the variations in current in the secondary coil provide the rhythmic current which is utilised. This apparatus, which cannot regulate continuous current, is made by Messrs. Gaiffe of Paris (Medical Supply Association, 228, Gray's Inn-road, London), while my own apparatus in both the small and large forms is made by Mr. Leslie Miller of 66, Hatton-garden, London. The prices of the instruments shown in Figs. 1 and 2 are £2 15*s.* and £7 10*s.* respectively, and the third instrument described costs £20.

FIG. 3.



Harley-street, W.

THE TREATMENT OF CHRONIC ULCER OF THE LEG.

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FEW will be found willing to dispute the statement that chronic ulcers of the leg often present great difficulties in treatment, and yet these ulcers can always be made to heal if sufficient care be taken, and in this paper I have described those methods which I have found of most value; they may prove useful to others who have to deal with this refractory condition. Before, however, I describe the methods I employ it is essential that I should point out the importance of an accurate diagnosis if success is to be attained. The etiology of the ulcerations met with on the leg is varied. Many are traumatic and in themselves need detain us little because a purely traumatic ulcer rarely becomes chronic, for it has a natural tendency to heal; in fact, if an ulcer which started from an injury is found to be still existing many months after its first appearance, it may be accepted as certain that some complicating factor is present which has interfered in the healing process. I shall refer again to this point later.

In the opinion of most surgeons, so far at least as may be gathered from the text-books, the commonest cause of ulceration of the leg is the presence of varicose veins. I would not for a moment be thought to under-rate the etiological importance of varicose veins in the production of chronic ulcer of the leg, for I recognise fully the great rôle they play in damaging the tissues of the leg and in preparing them for ulceration; but I wish to lay down as certain, at least to my own mind, that varicose veins are seldom the sole cause of ulceration of the leg. They coöperate, they aid, they form an important factor in the production of these chronic ulcers, but without other assistance they rarely suffice to produce definite ulceration.

What are these factors? Trauma I have already mentioned, and sepsis is a potent adjunct in breaking down the tissues, and a certain proportion of chronic ulcers of the leg can certainly be ascribed to the united action of these three factors. What the proportion is I cannot say definitely, but my impression is that not more than 5 per cent. of all cases of chronic ulceration of the leg can be satisfactorily accounted for by these agents. The more I see of these chronic ulcers the more I become convinced that in a very large proportion they are syphilitic in origin—that is, they are due to the breaking down of gummata. In fact, I should feel inclined to say that more than 90 per cent. are syphilitic in origin. Such a belief must necessarily have a great effect on the method of treatment adopted, and my increasing confidence in the opinion I hold in this matter is due mainly to the effect of treating these ulcers by anti-syphilitic measures. I do not wish to deny that other etiological factors also have a share in the production of these ulcers; the presence of the syphilitic poison is not sufficient of itself to produce a chronic ulcer, otherwise there could be no reason why these ulcers should not occur on any other part of the body as frequently as on the leg. The poison needs, as it were, some excuse for appearing at one part of the body rather than another, and this localising factor may be trauma, sepsis, or varicose veins. In fact, it is not rare for all these harmful influences to act together for the production of these ulcers. But the chief of them all, the most important, in fact the essential factor, is, in my opinion, the presence of the syphilitic poison. If that be so, the treatment to be effective must deal with this virus, though the other agents in the production of the ulcer must not be neglected. In addition to these ordinary forms of chronic ulcer met with on the leg there are other rarer varieties, such as that seen in Bazin's disease, which need not be described here.

If we search the text-books of surgery for a description of the characters which occur in gummatous ulcers of the leg we generally find it stated that the gummatous are more commonly met with above the middle of the leg—in fact, around the knee. It is certainly true that ulcerations above the middle of the leg and in the neighbourhood of the knee are very frequently or almost always gummatous, but I hold that syphilitic ulcers are even more frequently seen in the lower half of the leg; so the mere fact that the ulcer is below the middle of the leg must not be allowed much value in the diagnosis of the cause. The most important point in diagnosing chronic syphilitic ulcers of the leg is multiplicity. (Fig. 1.) If several ulcers are present the probability of the ulceration being syphilitic in origin is, in my opinion, very great indeed, for it is intensely improbable, if varicosity of

the veins has led to so much interference with the circulation and nutrition of the part that ulceration has been produced in two adjacent foci, that the intervening portion of the skin should have such good circulation as to enable it to retain vitality. (Fig. 1.)

Another character which is of great importance in diagnosing syphilitic ulcers is the appearance of the margin. It is often stated that gummatous ulcers are characterised by being "punched out" in appearance, with sharply cut edges. This is certainly true of recent ulcers, but when the ulcerative process has proceeded for some months or years these well marked signs are no longer to be expected. But in their place we have another character which is, in my opinion, not less trustworthy: this is the crenation of the margin. The edge is scalloped, the hollows being sometimes large, but in others very small, even needing a lens for their complete recognition. (Fig. 2.) I would not say that this crenation of the margin is absolutely diagnostic of a gummatous ulcer, but it shows at least that the ulceration is caused by the breaking down of a granuloma, and of all the granulomata the commonest in the leg is certainly the gumma. The presence of a "wash-leather slough," on which so much stress is often laid, is certainly very suggestive of a gummatous ulcer, but this sign also must not be looked for in chronic ulcers of the leg.

The main object of this preliminary account of the etiology of these ulcers of the leg has been to draw attention to the very large proportion in which a syphilitic taint is present. Incidentally I may remark that no trust is to be put in the history of the case in the diagnosis of the gummatous nature of a chronic ulcer.

Is there any special reason for the slowness of healing in the more severe and long-lasting ulcerations of the leg? Fig. 3 is reproduced from a photograph of a specimen in the Museum of the Royal College of Surgeons of England. It shows the tibia and fibula of a leg; both bones are much thickened from chronic osteitis and periostitis, doubtlessly due to the persistent hyperæmia of the limb. But the most marked change is a broad long mass of new periosteal bone situated for the most part on the internal, subcutaneous surface of the tibia, a little above the middle, though the margins also stretch outwards on each side. This large mass of new bone has been produced by the proximity of a very chronic ulcer of the leg, and if we could dissect many of the older ulcers that we meet with in hospital practice we should find similar overgrowths and formations of new periosteal bone. During life the edge of the ulcer is adherent to the margin of the thickened mass of bone. Now, in the healing of any ulcer the drawing together of the opposite edges so as to diminish its size is a very important factor in its healing, so that the scar of an ulcer is never so large as the ulcer from which it was derived. When, however, the margin of an ulcer is fastened firmly down to a structure so unyielding as bone, not the least contraction can occur, and this in itself would go far to prevent or retard the healing of a chronic ulcer. Further, the firm fixation of the margin of the ulcer to the bone interferes greatly with a due supply of blood to the floor of the ulcer, and thus the formation of granulations is greatly impeded.

The main purpose of this paper is to deal with the treatment of these ulcers, and I may best commence by saying that everything which favours the general well-being of the patient will aid the healing of the ulcer. Therefore, the patient should obey the ordinary rules of hygiene in diet, and especially I would lay stress on the importance of total abstinence from alcoholic liquids for these cases: if this be not possible the amount of alcohol consumed should be reduced to the smallest limits. Excess of food is also harmful, but no very strict diet need be followed. There is no doubt that rest and elevation in bed are of noticeable value in expediting the healing of these ulcers; but rarely, indeed, can it be said that they are essential to a cure. Rest acts in several ways. When varicosity of the veins is an important etiological element in the production of an ulcer the beneficial effect of rest will be obvious, and it is well to bear in mind that even where no varicose veins are present rest in bed will greatly favour the return of blood from the part and the lymphatic circulation is also benefited by the recumbent posture, so that exuded materials are more rapidly and completely removed. The greater equability of the temperature in patients in bed also cannot be without a favourable influence on the regeneration of the tissues, so that we may have to fall back upon the employment of the recumbent posture for those troublesome and otherwise intractable cases which fail to respond to the more simple methods of treatment.

The treatment naturally divides itself into two parts—the constitutional and the local measures. So far as the general health is concerned, I have already stated all that is necessary, and I have now to deal with the question of the medicinal treatment. Believing, as I do, in the gummatous origin of a vast majority of these chronic ulcers I look upon anti-syphilitic treatment as of vital importance, and the only point to determine is whether that treatment should consist in the administration of mercury or of iodides. My own impression is that, while the iodides far surpass mercurial preparations in bringing about the healing of gummatous ulcers, they have but little power in preventing the reappearance of ulceration a few weeks or months after the former ulcer has healed. This being so, the best treatment, in my opinion, is to give a course of iodides until the ulcer heals, and then to administer mercury so as to safeguard against the likelihood of a reappearance of the disease. The iodide salt to employ in the first instance matters, on the whole, but little; potassium iodide is most widely used, though in some cases the sodium salt is better borne. The dose required is often great, 20 grains three times a day being not rarely needed, but in many cases half this quantity will suffice. In those instances where the iodides are badly borne several expedients offer themselves; free dilution is the simplest and is generally very successful. Occasionally an increase of the dose is followed by a disappearance of the symptoms, but nowadays the most satisfactory method of dealing with such cases is the employment of organic compounds of iodine in the place of the metallic iodides. Recent chemical research has brought to light many synthetic remedies of this class, so that the surgeon has a wide choice. I have not tried them all, but of those I have employed I am inclined to think sajodin has been the most satisfactory. It must not be forgotten that it is the quantity of iodine which is absorbed into the blood that is of importance, and not merely the amount which has been taken into the alimentary canal. A very useful adjunct to the iodide treatment is to be found in the simultaneous administration of quinine. All iodides are depressing, and it may well be that in many very debilitated subjects the administration of large doses of such a depressant as potassium iodide may aggravate the locally depressing effects of the disease, and thus may lead to the extension rather than to a diminution of the ulcerative process. To its general tonic effects, as well as to its well-known antiseptic powers, I am inclined to ascribe the beneficent action of quinine in these most difficult cases.

Sometimes other tonics are also useful, and in suitable cases much benefit will be derived from the judicious administration of strychnine and of iron. Occasionally good may result from intermitting the administration of the iodides for a week or two. This is especially useful when an ulcer comes to a standstill after progressing favourably for some weeks. A short holiday, as it were, from the iodides will often be followed by an improvement in the condition of the ulcer which begins once more to heal with renewed energy. I consider it to be of great importance not to administer iodide and mercury at the same time, it is far better to administer them separately.

In all ulcerations associated with the breaking down of granulomata the presence of septic organisms is of the utmost importance, for they hasten the softening of the granuloma, they cause hyperæmia of the surrounding tissues, and thus favour the extension of the granuloma. By the absorption of septic products to which they give rise they impair the health of the patient and so favour the progress of the disease. It is not therefore unreasonable to expect that a successful attempt to diminish the number of septic micro-organisms of the part would be of great value in favouring the healing of the ulcer. Should the ulcer be very foul and fœtid, dressing with frequent fomentations will favour the throwing off of sloughing tissues and will also, by promoting the formation of healthy granulation, lead to a less septic condition of the part. The solution used for the fomentation is of comparatively little importance; it should be antiseptic but there is no need in most cases to employ any powerful antiseptic, for the damage done to the tissues may surpass the benefit accruing from the fomentations. On the whole I am inclined to think that the most useful solution for this purpose is made

by dissolving a drachm of boro-glyceride in half a pint of hot water.

In most cases a lotion is advisable for the daily cleansing of the ulcer, and a great many which are suitable are available. Those which I have found to be the most useful are lotio hydrargyri nigra, lotio hydrargyri flava, solutions of phenol and solutions of iodine. The local application of mercurials is not really inconsistent with the advice I have already given, that mercury and iodides should not be administered together. I am inclined to think that the yellow lotion of mercury is somewhat superior to the black lotion, but the difference is slight, and either will form a convenient lotion for chronic ulcer if diluted by the addition of three or four times the same quantity of water. Carbolic lotion must not be used strong; 1 in 80 or 1 in 100 will be quite sufficient, and the mild anæsthetic property of the phenol may prove useful in certain cases where the ulcer is specially sensitive.

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Chronic gummatous ulceration showing crenation of margin.

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But of all these lotions I prefer the preparation containing free iodine. It may be used in either of two ways. When used merely as a lotion for bathing the part night and morning, a lotion formed by the dilution of the tincture of iodine with four or five times its volume of water will do. It is no mean antiseptic, and it is able to exert its peculiar and special action on the gummatous deposit, and in this way the affected tissues get very much more iodine than when an ordinary dose of an iodide is given by the mouth. If, however, this latter effect is specially desired it is well to use a stronger solution, and a watery solution of iodine equivalent to the tincture may be employed with very good results. Occasionally I have thought it advisable to use even stronger solutions than this, but care and judgment are required in the selection of the cases on which a strong solution is to be employed. With the weaker solution no pain is caused, but the stronger solution may give rise to much discomfort and should only be employed when really necessary.

Between the applications of the lotion it is advisable to use some ointment for dressing the wound. The use of an ointment prevents the dressing adhering to the surface of the ulcer, and if of suitable composition it will materially hasten the healing of the sore. Any of the ointments containing preparations of mercury may be used, though I think the ammoniated mercury and the yellow oxide are the most useful. It is well to bear in mind that if a mercurial ointment be used while the patient is taking iodides internally, but especially while a lotion containing iodine is used locally, there is no small risk of a chemical interaction taking place and of the red iodide of mercury being formed. This effect would be shown by the painful smarting resulting from the application of an ointment usually soothing and bland.

The dry treatment of these chronic ulcers is sometimes convenient and useful. Powders are applied to the ulcer in such quantity that all discharge is absorbed and within a few days the powder has formed a solid crust over the ulcer which ceases to discharge and heals under the crust so formed. This method of treatment requires much care in the dressing and is much more satisfactorily employed when patients have been admitted into a ward of the hospital or are kept under close observation at home. The essentials for success are that the powder should be perfectly dry and that it should be applied in such quantities as to absorb completely the discharge. There are many suitable combinations, but the following is perhaps the best of all: one ounce of the powder should contain three drachms of oxide of zinc and half a drachm of calomel, and the remainder should be formed of kieselguhr.

Unna's method of treating these chronic ulcers is especially convenient for those in which varicosity of the veins of the limb fills an important rôle. It consists in bandaging the limb from the toes to the knee with gauze, and while the gauze is being applied melted Unna's paste is painted over it. The paste solidifies as it cools and exerts a uniform and constant pressure on the limb both by night and day. If necessary, a window may be cut over the ulcer to give exit to

the discharge. Unna's paste consists of an admixture of gelatin and oxide of zinc. I recognise the value of Unna's dressing in certain cases, but I do not look upon it as a satisfactory routine method of treatment in chronic ulcer of the leg. The elastic bandage introduced by Martin for the treatment of these ulcers associated with varicose veins is not without use, but the difficulty of keeping the bandage in good condition, especially when a copious discharge from the ulcer is present, and of applying it effectively day by day detracts greatly from its practical utility, especially in hospital out-patient practice; but in private work, where more care is likely to be taken both in bandaging the leg and in looking after the bandage, better results are attainable.

Gummata, like all other granulomata, are removeable by the application of X rays, and these may be employed usefully in some obstinate cases of ulceration of the leg which do not respond to the ordinary methods of treatment already detailed. The dose to be used should be what is often called a "half Sabouraud"—that is to say, an amount sufficient to cause one of Sabouraud's pastilles to undergo about half the change of tint which occurs when a full Sabouraud dose is given. The recognition of this quantity is naturally a little indefinite, for it depends so much on an estimate of tint, but a little more or less is of small importance. Indeed, a whole Sabouraud dose need not be too much. The other methods of treatment already described need not be interrupted except for the mere application of the X rays, being resumed immediately afterwards.

So far I have described the ambulatory treatment of these chronic cases. The task is rendered far less difficult if the patient is able and willing to rest—that is to say, to remain in bed for several weeks; but it is by no means easy to persuade these patients that confinement to bed is really desirable, and when they are willing to agree to this mode of treatment it is often not possible for them to avail themselves of it, because it interferes with their livelihood. Still, cases do occur from time to time; they are rare, it is true, but they do occur, where all the means at our disposal do not suffice to effect a healing of the ulcer while the patient is still walking about. In cases such as these rest in bed is essential. The ulcers of the leg which refuse to heal under the employment of ambulatory methods are chiefly those in which the varicosity of the vein is the most potent etiological element, especially when the limb is greatly swollen and the duration of the existence of the ulcer has extended over many years. The position in bed which is most conducive to recovery is one in which the leg is raised above the level of the rest of the body. This is best effected by placing a board under the lower part of the mattress with one end resting on the foot of the bed, so that while the upper half of the body lies flat the lower extremities are raised at an angle of about 30° with the horizontal. In this way the return of blood from the affected limb is greatly facilitated and the lymph also flows away freely with the result that the congestion rapidly diminishes, the size of the limb decreases, and the sore takes on a healthy healing action. Any of the topical applications which I have already mentioned in dealing with the ambulatory treatment can be now employed, but the best are the lotion of iodine and a weak mercurial ointment. The effect of the X rays may here also be taken advantage of, and in most of the cases a rapid healing of the ulcer will occur, but unless attention is paid to the antisyphilitic treatment there is great probability that as soon as the patient resumes his ordinary work the ulcer will reappear; therefore, even if the patient is treated by confinement to bed it is just as essential that the iodide and mercury in turn should be administered, as it is in the treatment of these ulcers by ambulatory methods. There are some ulcers that still prove resistant, even when given prolonged rest, and the delay in such cases will probably be due to the tethering of the edge of the ulcer to the underlying bone. It may, in these cases, be necessary to free this attached margin, and this is best done by first employing fomentations to reduce the septic complications of the ulcer, then scraping the whole of the ulcerated surface with Volkmann's sharp spoon, and with a scalpel undercutting the whole of the edge of the ulcer. It will often be found to be possible, when this has been done, to draw together the edges so that the size of the ulcer is materially reduced, and if at the same time the margin of the skin is freshened, a very thin border being cut off, the healing process will probably start afresh, and the granulation of the ulcer will be rapid and sure.

In speaking of a mode of causation of chronic ulcer of the leg I mentioned that trauma was often an important factor, and if this be true of the original ulcer it is also even more certain that the scar of a healed ulcer is peculiarly liable to be damaged by even slight injury, so that for long after an ulcer is healed care should be taken by a suitable dressing to protect the soft, tender, newly-formed skin from even those slight and numerous blows which to a healthy leg do no harm.

The difficulties of treating ulcers of the leg are certainly not small, but the satisfaction of causing to heal an ulcer which has lasted for 10 or even 20 years is very great, and the attainment of a consummation so devoutly to be wished may exercise all the care, attention, and ingenuity of the surgeon.

Upper Wimpole-street, W.

ATROPHIC PARALYSIS OF THE MUSCLES OF BOTH HANDS AND FOREARMS; RECOVERY.

(TOXIC DEGENERATION OF THE LOWER MOTOR NEURONS.)

BY R. T. WILLIAMSON, M.D. LOND., F.R.C.P. LOND.,
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THE following are notes of a case of an affection which is of interest, since the diagnosis and prognosis of such cases often cause much difficulty in medical practice.

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On admission to the hospital there was well-marked atrophy of the thenar, hypothenar, and interossei muscles of both hands, with inability to perform the movements normally produced by the action of these muscles. She was quite unable to oppose the tips of the thumbs to the tips of the fingers; she was unable to abduct or adduct the fingers, or to place them in the "interosseal position" (flexion at the metacarpo-phalangeal joints and extension at the phalangeal joints). There was also wasting of the muscles of the forearms, but this was less marked than in the muscles of the hands. The wrists and fingers were "dropped." She was unable to extend the wrists or to extend the fingers. The grasp and the flexion of the wrist were very feeble on the right side, but were only slightly impaired on the left. Flexion at the elbow was impaired on each side; extension at the elbow was performed quite well. The wrist-jerks and the triceps-jerks were lost. The muscles of the forearms were tender on pressure. The sensations for tactile impressions, pain, and temperature, and the vibrating sensation were felt on both hands and forearms. The legs were unaffected; the knee-jerks were present; there was no ankle clonus; the plantar reflex was normal (of the flexor type). There was no blue (lead) line on the gums. The heart, lungs, abdominal organs, and urine were normal. There were no other signs of disease.

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The condition remained stationary for several weeks; then gradual improvement occurred, the muscles of the forearm recovering before the small muscles of the hands. Early

in June, 1908, she was able to extend the wrists, but not the fingers, and the wasting of the muscles was not so marked. Two months later the muscles of the forearm had recovered completely and the fingers and wrists could be extended and flexed quite well; but the atrophy of the small muscles of the hands persisted and the movements performed by these muscles were much impaired. The hands presented a "claw-like" appearance (*main en griffe*). By the end of 1908 the wasting of the muscles of the hand had almost disappeared; she was able to perform the movements caused by the interossei, but she was still quite unable to oppose the tips of the thumbs to the tips of the fingers. During the first five months of 1909 steady improvement occurred; by the end of May the atrophy of the muscles of the hand had completely disappeared, and all the movements of the hands and forearms could be performed quite well, except that in attempting to oppose the tips of the thumbs to the tips of the fingers she was not quite able to place them in contact. By the end of August these movements could be performed. The treatment had been massage, galvanism, and hypodermic injections of strychnine at different periods, and quinine pills during the last three months.

Briefly stated, the case was one of atrophic paralysis of the small muscles of the hands and of the extensors of the fingers and wrists, with paresis of the flexors of the wrists and fingers. The small muscles of the hands were most affected and were the last to recover. The onset was subacute. There were pain and tenderness in the arms at first. The affection followed an acute illness supposed to be influenza. There was no evidence whatsoever of lead poisoning, and the symptoms differed from those of lead paralysis by the presence of pains and tenderness in the arms at the onset, by the paralysis and wasting being most marked and persisting longest in the small muscles of the hands, and by the affection directly following an acute illness (probably influenza). The quite symmetrical distribution of the paralysis, the complete recovery, and the pains and tenderness in the arms at the onset were against acute anterior poliomyelitis. Moreover, it is extremely rare for acute anterior poliomyelitis to affect both sides of the cord at the lowest cervical and first dorsal segments without affecting other regions of the cord. The case closely resembles those which were first described by Dr. A. Stanley Barnes[1] under the name of "toxic degeneration of the lower motor neurons." In his cases the muscles of the hands were chiefly affected. The pathological examination in one of his cases showed changes both in the nerve cells of the anterior horns of grey matter and in the peripheral motor nerves. I have seen four cases of this affection and have recorded one case previously[2]; in this case the patient has suffered from two attacks subsequently. Complete recovery has occurred after each attack.

Manchester.

THE ENUMERATION OF BLOOD CORPUSCLES BY SIMPLIFIED METHODS.

BY ROBERT SAMUT, M.B., C.M. EDIN.,
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THE enumeration of the formed elements of the blood, although admittedly of paramount importance in the diagnosis of disease, is not as frequently carried out as its value would call for. This is undoubtedly due to the fact that, in enumerating blood corpuscles by means of Gowers's or the Thoma-Zeiss hæmocytometer, the chief difficulty encountered is the necessity of counting the large number of corpuscles in each of the 16 small squares which make up one of the large squares, since at least eight sets of 16 small squares should be counted before a fairly accurate result can be expected. Moreover, corpuscles often overlap the lines which form the squares, and great care is required and time lost to avoid counting them twice over.

By means of the Blenden-Ocular "Ehrlich" these difficulties are avoided. The construction of the ocular is as follows. An ordinary No. 2 ocular is provided with a screen which cuts out a square from the field of vision of the ocular. By means of the little knob K (Fig. 1) this square can be narrowed and reduced to 0, and by means of notches, which divide one side of the square into four equal parts, the reduction may be effected in exact proportion (Fig. 2).

FIG. 2.

Enumeration.—With this instrument enumeration of corpuscles is done as follows. The drop of blood

FIG. 1.

is obtained and diluted in the Thoma-Zeiss pipette and blown out on to the Thoma-Zeiss ruled slide in the usual way. When this has been placed on the microscope, allow five minutes to elapse. Use a No. 9 Leitz objective and a Blenden-Ocular, the slit being so adjusted by means of the little knob that four squares of the central platform of the counting chamber just coincide with it. The number of red corpuscles are counted and the preparation may now be shifted as many times as desired, each count representing the number of corpuscles in four squares, since the slit corresponds exactly to four of the squares. The total number obtained after several such counts being divided by the number of counts gives the number of red corpuscles per field of four squares; hence division by four gives the number per square. This number multiplied by 4000 would represent the number of corpuscles per cubic millimetre were it not that the dilution has to be taken into account, and accordingly the result must be multiplied by 100 or 200.

Example: Average number of red corpuscles per square = 10. Then $10 \times 4000 \times 100 = 4{,}000{,}000$ per cubic millimetre.

The method is quicker and more accurate than that usually employed, since it enables a much larger number of squares to be counted irrespective of the lines of the counting chamber, which constitute an element of confusion in the process of counting.

Again, the Blenden-Ocular may be used for the purpose of counting the leucocytes in the following manner. A dry film preparation of the blood to be examined is fixed and stained by Leishmann's or Jenner's stain. Using a No. 9 Leitz objective and a Blenden-Ocular the number of red and white corpuscles are counted, the shutter of the ocular being at one-half or one-quarter of the total field of vision. The count is made several times through the same slit and an average of corpuscles per field is obtained.

$$\text{Now } L : R :: l : r^* \quad \therefore L = \frac{Rl}{r}$$

where L represents the unknown number of leucocytes, R the known number of red corpuscles per cubic millimetre, and l and r represent the average of leucocytes and red corpuscles respectively per field of vision.

Sliema, Malta.

[1] Brain, 1902, vol. xxv.
[2] Ibid., 1903.

* Simon, Clinical Diagnosis, 1900, p. 96.

A CASE OF SIMULTANEOUS FRACTURE OF THE PATELLÆ.[1]

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A SHIP'S steward, aged 30 years, was admitted to the Cardiff Infirmary under my care on Dec. 19th, 1908, with the following history. On August 12th, while on board ship at sea, he was carrying dishes down the ladder from the bridge deck to the main deck. Tropical rain was falling and the steps and rails of the ladder were wet and slippery. His face was away from the ladder because of the dishes he was carrying. On one of the first three or four steps one foot slipped and he fell. He let go the dishes, threw his body backwards to save himself and the toes of his feet catching in the steps he came to the bottom of the ladder in the position shown in Fig. 1, both his knees striking the deck hard at the same moment. There was no medical man on board. The captain found both knee-caps broken, had him placed in his bunk, applied back-splints with footpieces and brought the broken fragments as near together as he could with plaster. The patient was kept thus until 19 days later, when the ship reached Durban, Natal. He went at once to hospital. Splints were continued for a week and then plaster-of-Paris was applied. He began to get about and on Oct. 29th left the hospital and came to England. On admission to the infirmary he could walk feebly with sticks. He had a great sense of insecurity, the slightest twist or slip caused him to stumble or fall; he held on to everything within reach. There was fluid in both knees and tenderness over both joint areas, particularly the right. Pain in the knees was almost constant. Both patellæ were fractured transversely, the upper fragment in each case being the larger. The separation was 1 inch on the right side and ½ inch on the left side. The knees were fixed by adhesions in almost extended positions. Operation was delayed in order to cure boils on the legs.

On Jan. 11th, 1909, operation was undertaken. Both fractures were freshened and wired, vertical skin incisions being made. The wounds were closed in layers. The adhesions were broken down prior to wiring. Bending after wiring and before closing the wounds could not be done as the wires began to cut through. The wounds were healed in a week. The after-progress was slow in spite of massage and movements. The patient left the hospital on March 20th, using crutches. On June 9th he was still using crutches ("compensationitis") but could walk without them and bend either knee to nearly a right angle. M. Lucas-Championnière, who was in Cardiff, kindly examined him and pointed out that union was not firm in the right patella. On Sept. 6th he had discarded crutches and sticks. He walked well with a natural gait, his walk showing no evidence of his injuries. He had got fatter, was cheerful (in contrast with a former depressed condition), and was about to resume work. He still came downstairs clumsily, putting both feet on one step before proceeding to the next, but when encouraged and shown he managed to come down in the ordinary way. Both patellæ were firmly united and he could bend both knees to well beyond a right angle. The twisted ends of the wires could no longer be felt as formerly. He had a pair of strong good legs and was quite satisfied with his condition.

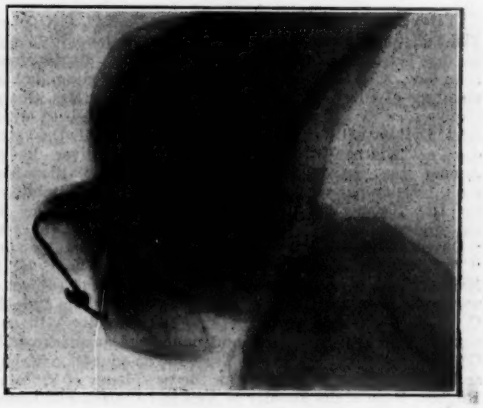
FIG. 1.

Sketch showing dramatically the manner in which the knees struck the deck.

FIG. 2.

Radiogram of right knee.

FIG. 3.



Radiogram of left knee.

A number of X ray photographs were taken by Dr. Owen Ll. Rhys in the electrical department of the infirmary. Those reproduced (Figs. 2 and 3) were taken on Sept. 14th and show the knees flexed but not quite to their fullest extent. In the left knee the wire, as frequently happens, having done its duty as a splint, is broken.

[1] A paper communicated to the Cardiff Medical Society, Oct. 12th, 1909, when the patient was shown.

References.—1. M. Lucas-Championnière. This surgeon, whose experience of fractured patellæ is very large, on the occasion of his recent visit to Cardiff kindly told me that he had seen and treated three cases of simultaneous fracture. They occurred a good many years ago and he did not remember the mode of production in any. Two were in women and one in a man. All were old cases when operated on and in all one patella was sutured and not the other. As far as he knew all three patients had, eventually, useful legs. 2. Astley Cooper.[2] "A young woman was brought into my house in her father's arms and he said, 'I am obliged to carry her, for she has lost the use of her legs, having broken both her knee pans eight months ago. .....'" Recovery ensued gradually. 3. Hamilton:[3] "I have seen a double transverse fracture or a fracture of both patellæ in a man, æt. 22, who fell from a third-storey window, striking, he says, upon his knees." 4. Mansell Moullin:[4] "The patient is conscious of something breaking before he falls and it sometimes happens that in the desperate effort to save himself the other patella snaps across as well. I have known this occur to a man in the first stride of a race." 5. Scudder:[5] an illustration is given of fracture of both patellæ, but there is no reference in the text.

Rarity of the injury.—There is little reference in surgical literature to simultaneous fracture of the patellæ, although fracture of the two bones at different periods and refracture of one bone are commonly mentioned. Simultaneous fracture appears to be a rare injury.

Mode of production.—I believe that in this case the fracture was due to direct violence. The very acute flexion of legs on thighs would bring the patellæ to the deck first and not the tibial spines. The patellæ would be held tight-braced against the femur ready to crack across directly they hit the deck. The patient's own statement is that he felt nothing snap before alighting and thinks that the blow on the deck caused the fractures. It is, of course, possible to take the view that in throwing his body backwards the man snapped both patellæ. The case must be regarded as a special one. As regards ordinary single transverse fractures, there seems in most cases to be no good reason for giving up the older view that each is due to the snapping of the bone across the condyles of the femur—i.e., to indirect violence. This is often clearly supported by the history of the case.

Cardiff.

[2] On Dislocations and Fractures of the Joints, 1842 edition, p. 230.
[3] Fractures and Dislocations, 1871 edition, p. 435.
[4] Surgery, 1891 edition, p. 474.
[5] The Treatment of Fractures, 1903, p. 347.

THE PARENTS' NATIONAL EDUCATIONAL UNION.—The Thirteenth Annual Conference of this union will be held at the Friends' Meeting House, Bull-street, Birmingham, from Nov. 15th to 19th inclusive. On the opening day the members of the conference will be received by Mrs. George Cadbury, who will give an address of welcome, to which Earl Lytton will reply. In the evening of the same day an address will be given by Sir Oliver Lodge. Among the papers already announced for discussion are: "Environment in Relation to Nervous Stability," by Dr. Helen Webb; "Educational Ideals of the Renaissance and Ourselves," by Dr. Geraldine Hodgson, D.Litt.; "Direct and Indirect Moral Teaching," by Miss Bradley; and "The Education of the Imagination," by Canon J. H. B. Masterman. Papers are also announced on the subject of university education by the Bishop of Birmingham and Mr. C. J. Fleet, the Governor of McGill University. In connexion with the conference and under the auspices of the Co-educational Public Schools Trust the co-education of boys and girls will be discussed under the presidency of Professor Hughes, Dean of the Faculty of Arts and Professor of Education in the University of Birmingham. During the course of the conference visits will be made to the village of Bournville and to the new University buildings at Bournbrook. Among the principal objects of the union are the assistance of all classes to understand the best principles and methods of education, and the education of public opinion on the subject of the training of children. Further particulars of the conference and tickets (price 3*s.* 6*d.*) can be obtained from Miss Parish, 26, Victoria-street, London, S.W.

LARGE VESICAL CALCULUS, WEIGHING 26¼ OUNCES, REMOVED BY SUPRAPUBIC LITHOTOMY; RECOVERY.

BY W. W. HEARNE, M.D., CH.B. MELB.

THE very large size of this calculus and the complete recovery of the patient will perhaps lend interest to the following notes.

A married woman, aged 39 years, consulted me in March of this year complaining of great pain in the pelvic region, foul-smelling urine containing much pus and frequently blood in considerable quantity, and frequent painful micturition necessitating her rising often as many as eight or nine times at night, with consequent loss of sleep and impairment of general health. She had been ill about 12 years, and had become rapidly worse during the last six months. Examination revealed a large calculus almost entirely filling the bladder.

On April 15th Dr. J. H. Nattrass anæsthetised the patient, and the bladder having been washed out with boric lotion and its distension attempted with a few ounces of the same fluid, with Mr. A. Honman assisting, I opened the bladder in the suprapubic region with the object of removing the calculus by that route after having reduced its size by fragmentation. When exposed, however, all attempts at the latter procedure were rendered futile by the size and density of the stone, the largest lithotrite failing to grasp or even chip pieces off it; and as the use of the chisel and mallet appeared to offer too great risk of damage to adjacent viscera, it became necessary to remove the mass entire. It was obviously impossible to extract the stone through the limited space available below the reflection of the peritoneum, and the necessary room was obtained by carefully stripping that membrane upwards off the fundus of the bladder for about two inches. Even then it was necessary to incise the viscus from the extreme upper limit right down to the neck deeply behind the symphysis pubis. Venous hæmorrhage in the latter region was free but was readily controlled. After extraction of the stone the bladder was well washed out and the incision in it was closed above and below with catgut sutures, a rubber drainage-tube being inserted at about the middle; gauze drainage was provided in the prevesical region behind the symphysis, the ends of the gauze and the tube being brought out through the lower extremity of the abdominal wound, which was elsewhere closed. After four days the tube was removed from the bladder, which throughout the period of convalescence was irrigated twice daily with boric lotion and later with hydrogen peroxide solution (1 in 4), urotropin (10 grains) being also given by the mouth. On May 21st, as there was still a small urinary fistula, the walls of the latter were refreshed and brought together with a deep mattress suture, which six days later had to be removed as it was cutting through. After two days more the urine was coming through the fistula again. A self-retaining rubber catheter was then introduced per urethram and the bladder was washed out night and morning with boric lotion, followed by silver nitrate solution of strength increased from 1 grain to 5 grains in 4 ounces of water. At the end of eight days the fistula was permanently closed (nine weeks from the day of operation) and a week later the patient left the hospital. For another week the catheter was worn at night only and the irrigation of the bladder was continued night and morning. She is now, more than three and half months after operation, quite well, with her wound firmly healed and no cystitis. Her urine is retained perfectly and is passed easily at normal intervals, and she says that she was never better in her life, and "feels as if she could do the whole work of the house"; her weight, which prior to the operation had fallen to 7 stones 12 pounds, is now 9 stones.

The calculus is nearly spherical, measuring 12½ inches in its longest, and 11½ inches in its shortest, circumference, and in the recent state weighed 26¼ ounces.* A large area of its surface is thickly studded with sharp projecting spines, which, no doubt, were responsible for the hæmaturia from which the

* Dr. Hearne sent us a photograph of the stone, but from the measurements given it will be seen that a reproduction of this at the actual size could not have been included in our column. The reader will easily imagine a spiculated blob about 25 per cent. larger than a cricket ball.

patient suffered. The stone has not so far been opened, so that no examination as to the composition of the interior has been made, but Mr. Masson of the University of Melbourne (to whom I am indebted for an examination of the outer layer) reports that the fragments tested consist of calcium and magnesium phosphates, with a possible admixture of triple phosphates. The specimen has been presented to the museum of the Medical School of the University of Melbourne.

Mr. H. Littlewood, in THE LANCET of May 11th, 1907, p. 1315, gives a list of the largest calculi successfully removed up to that date. The largest weighed nearly 34½ ounces and measured 6 inches by 4 inches diameter. It was removed by Mr. H. M. N. Milton[1] at Cairo by abdominal section from an Egyptian fellah, aged about 60 years, who survived about two and a half months. During part of this time he was sufficiently recovered to go out in the hospital garden, but he eventually sank and died in the hospital from kidney disease, the power of expulsion having never been regained by the bladder, which was drained by a fistula. The second on the list was one of 24½ ounces removed by Sir Thomas Smith[2] at St. Bartholomew's Hospital, London; this stone measured 13 inches by 9½ inches in its longest and shortest circumferences respectively. The patient made a complete recovery.

In January of last year Dr. Owen Richards[3] of Cairo successfully removed from the bladder of an Egyptian fellah, aged about 40 years, a stone weighing 32 ounces and measuring 4½ by 3¾ by 2¾ inches in its various diameters. The operator first endeavoured to crush the calculus with a lithotrite, but finding this impossible he removed it by fragmentation through incisions in the perineal and suprapubic regions. The patient left the hospital before the perineal wound was quite closed, but it is reported that when seen three and three-quarter months after the operation this was completely healed and that he had gained 12 pounds in weight and seemed in excellent health and spirits. His only disability was that when he walked about some urine dripped from his penis, and he had contrived to sling a little tin under it to keep himself dry. When he lay down he could hold his urine and pass it voluntarily.

This is the only successful case of which I can find any record in which a calculus of over 26 ounces has been removed since Mr. Littlewood's list was published. It would appear, therefore, that with the exception of the two Egyptian specimens removed by Mr. Milton and Dr. Richards respectively, the stone which forms the subject of these notes is the largest yet successfully removed of which particulars have been published.

With regard to the choice of operation, three methods present themselves—litholapaxy, suprapubic lithotomy, and laparotomy. In this case the calculus was so large and the patient so frail that I believe litholapaxy was out of the question, while the accompanying cystitis was so intense that any procedure involving the opening of the peritoneal cavity would appear to be admissible only as a last resort. Suprapubic lithotomy with fragmentation, therefore, was selected as the operation most suitable, this appearing to impose the smallest tax upon the patient's vitality, while at the same time providing a means of irrigating the bladder which might be expected to be of service in clearing up the cystitis. Fragmentation I expected to be able to effect by means of the lithotrite, but the largest instrument usually employed was absolutely useless. Dr. Richards in his case of a stone of 32 ounces (a male patient) used with marked success an osteotome and hammer, and very aptly points out that these large calculi can frequently be broken with light, sharp taps, while their inertia militates against the danger of injury to adjacent viscera, and one cannot help feeling that in the majority of cases such is the best means of dealing with them. In my own case this method was considered, but in the female the risk of damage to the pelvic organs from jarring appeared to me to be sufficiently great to make it desirable to remove the stone, if possible, by some other means.

In conclusion, I should like to express my indebtedness to Mr. Honman and Dr. Nattrass for their very able support during the operation.

Melbourne.

[1] THE LANCET, Sept. 16th, 1893, p. 687.
[2] THE LANCET, August 7th, 1886, p. 245.
[3] THE LANCET, July 25th, 1908, p. 231.

THE PLEA OF LUNACY IN THE CRIMINAL COURTS OF SCOTLAND.

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A PLEA of lunacy in the case of a prisoner charged with a serious crime or grave criminal offence arouses always several important issues not only from the medical but also from the legal point of view. From the medical point of view it is not unimportant whether the plea is in bar of trial or in bar of sentence, and whether the plea is put forward by the Crown or by counsel for the accused. Except in certain cases in which the insanity of a prisoner is obvious there are not infrequently exhibited differences of opinion among medical witnesses, even among expert alienists, as to the existence of insanity, or at least of such departure from normal average mental ability as, in the former case, would disable or prevent a prisoner to instruct his defence and thereby prevent a trial, and in the latter case would prevent sentence being pronounced by reason of insanity existing at the time of commission of the crime charged. In the latter case, solution of the question is not rendered easier by the circumstance that the examination of the prisoner by the medical witnesses is always *post facto*, may have to be conducted some time after the time of commission, and in these circumstances the insanity has to be inferred from the nature of the act itself, together with the history and conduct of the prisoner precedent and subsequent to the commission of the act. It is necessary for the medical witnesses in all such cases not only to form an opinion regarding the insanity of the prisoner, to state upon what grounds such opinion is founded, but also to advise the court as to whether the prisoner's mental state is such as prevents him from giving intelligent instructions for his defence, or whether at the time the crime was committed the prisoner knew the nature and quality of his act, or, if he did know, that he did not know he was doing what is wrong. All these questions involve grave and anxious consideration. While it is the duty of the court or jury to determine the question of responsibility, the court expects that the medical witnesses will be prepared to offer evidence which will enable them to so determine.

This opens up the whole vexed question as to the determination of responsibility in the opinion of the witnesses—a question regarding which it cannot be pretended there exists any broad line of agreement among the members of our profession, even among alienists. There are some who are of opinion that the act of any person which destroys the life of another by directly applied violence is an insane act, that for the time being such person has lost all power of self-control, and ought, therefore, to be deemed irresponsible. Such a view, carried to its logical conclusion, would lead to the abolition of punishment for what is deemed by the law to be crime, and to the abolition of our present conception of what crime is, in respect that it pre-supposes the absence of self-control during all such acts. Such a view, however, cannot be sustained in reason. Doubtless, persons vary considerably in their powers of self-control, just as they vary in their mental capability, but the law in theory and in practice pre-supposes that all persons should be able to exercise that measure of self-control as would prevent them by any unlawful act placing in jeopardy or putting an end to the life of another, unless there be such a defect or deficiency or absence of power of control, through disease of mind or otherwise, as to render them unfit to resist their impulses to destruction. Alienists differ amongst themselves regarding this normal average measure of self-control. No hard-and-fast line can be drawn between two or more individuals, on one side of which it may be said that one was entirely capable of exercising control and was therefore responsible for his act, and on the other side of which another was entirely incapable of so exercising control and was therefore wholly irresponsible. It would be difficult for the law to decide upon fine-drawn distinctions as to full responsibility and complete irresponsibility; it can only be expected to decide regarding the average condition of mankind in that regard. In short, if the thing or entity which we call crime

be but a manifestation of disordered mental function, then we ought to cease calling it crime, and instead of in prisons we should have to incarcerate in asylums those who commit such acts. But the law has not reached any such conclusion, and is not likely to do so; and, it may be added, neither has the medical profession generally nor the intelligent public. So long as evil motives actuate mankind, and so long as jealousy, covetousness, revenge, and other similar qualities exist, it must be held that men will commit crimes, even of the most brutal and revolting character.

Moreover, there are some who aver that they see in the character of a crime itself good ground for considering that it was the act of an insane person. We have heard the opinion expressed in court of the insanity of an accused person that it was founded on the brutal nature of the act committed. This, it appears to us, does not in itself form a safe ground for such conclusion. It may, indeed, happen that the nature of the crime does indicate *primâ facie* the existence of disordered mind in the perpetrator, but such a view requires to be buttressed by other evidence, such as may be found in the prisoner himself, in his past history or present conduct.

The usual procedure in a case in which insanity is placed in bar of trial and where both prosecution and defence are agreed is as follows. The accused person being brought to the bar, and before empannelling a jury, counsel for the accused or for the Crown, as the case may be, most commonly the former, calls witnesses to speak to the mental state of the accused and to his ability to instruct counsel for his defence. If the court is satisfied that the evidence proves such mental disability as renders the accused incapable of instructing his defence, the court will pronounce accordingly, and will order accused to be confined until His Majesty's pleasure is known. Where insanity is pleaded in bar of sentence the procedure is different. Such a plea involves the view that accused was of unsound mind at the time he committed the act, although he is not insane now. After the accused is placed at the bar he is asked to plead to the charge read against him. He pleads not guilty. A jury is then empannelled and sworn to truly try him, and evidence of the commission of the crime is adduced in the usual manner. Counsel for the accused will likely either cross-examine witnesses adduced by the Crown in order to discover evidence of the accused's mental condition before the commission of the crime, at the time of arrest, and thereafter, or he may, in addition, call medical evidence to show that at the time the act was committed the accused was not of sound mind. The judge in his summing of the facts to the jury will not only indicate the bearing and value of the evidence led regarding the mental state of the accused, but will point out to the jury what questions they are bound to answer. The jury may return a verdict of guilty as libelled, a verdict of culpable homicide where the original charge was one of murder, or it may return a verdict that the accused committed the act but was insane at the time of commission. If the last-named verdict be returned the court will order the accused to be confined until the Royal pleasure is known.

Where insanity is pleaded in bar of trial the theory of the law is that if it be proved that the prisoner before and at the time of trial is incapable of instructing his defence because of mental disability, or because of his inability to communicate with or be communicated with by others by reason of physical disability, he is insane, and therefore cannot be tried. The two following cases illustrate disability of the latter kind.

In 1897 a man named Harris was charged before Mr. Justice Darling and a jury at the Central Criminal Court, London, with the crime of murdering his wife. After killing his victim he attempted to commit suicide by cutting his throat. The effect of his self-inflicted wound was to destroy his vocal cords, so that he was unable to speak. Neither could he read nor write. Hence he was unable to instruct his defence. The law of England is that punishment cannot follow a criminal act (1) where the accused is found to be insane; (2) or is mute from defective organisation; (3) or where the accused cannot plead from want of an adequate interpreter or an interpreter of any kind. This man being unable to speak, to read, or to write, was to all intents and purposes mute, and thereby was unable to instruct his defence. Mr. Justice Darling put certain questions to the jury, in answer to which they found (1) that the prisoner could plead to the indictment; (2) that he was sane; (3) that he was not then capable of instructing his defence; and (4) that the cause of his disability was the result of his own unlawful act. The judge thereupon asked the prisoner to plead, whereupon he whispered "Not," and the judge ordered the trial to be adjourned till the next assizes. Harris was brought up for trial on Jan. 12th, 1898, before Mr. Justice Channell and a jury, and at the conclusion of the evidence was found guilty by the jury, who also found that he was responsible for his actions up to the time he committed the crime. The jury added a strong recommendation to mercy. He was sentenced to death.[1]

The following is also an unusual case, viz.: The King *v.* The Governor of His Majesty's Prison at Stafford, *Ex parte Emery*.

A prisoner, who was totally deaf and could neither read nor write, was arraigned for a felony. Upon being arraigned, he stood mute, and a jury, duly empannelled and sworn for the purpose, found that he was mute by the visitation of God. The jury were sworn again to try whether he was capable of pleading to the indictment, and they found that he was incapable of pleading and taking his trial upon the indictment and of understanding and following the proceedings by reason of his inability to communicate with and be communicated with by others. Upon this finding, the judge, acting under Section 2 of the Criminal Lunatics Act, 1800, ordered him to be kept in custody until His Majesty's pleasure should be known. Held: That the finding amounted to a finding that the prisoner was insane within the meaning of the Act and that the order was properly made.[2]

The whole question from the legal side has been tersely and clearly put as follows:—

In a strictly legal sense there is no insane criminal. Concede insanity, and the homicidal act is not criminal. The act of the insane, which in the sane would be criminal, lacks every element of crime. ..... A sane man, who has committed crime, may thus become insane, either before or after conviction for the crime. He may be rightfully called an insane criminal. If the insanity develops before the trial, the law would suspend his trial while the insanity continued. If the insanity came after conviction, he should be treated as an insane man, not as a criminal. The medical mind frequently views the question of insanity as one of responsibility only. To the legal mind, insanity conceded, responsibility ends. ..... If a man is clearly insane, he is not a criminal, even though "he has within him a tendency sufficiently strong to cause him to commit offences against both person and property." He needs care, and the State has the right, and it is its duty, to protect him from the consequences of his own mental condition. ..... It is a question of fact, usually for the jury—Is the man, or was the man, insane at the time the act was committed? If the jury says by its verdict he was insane, then the court sends him to an asylum for the treatment of the insane. If the verdict is that the prisoner is guilty, the effect of that verdict is that he was not insane, and the court sends him to prison. If the jury err, and pronounce an insane man guilty, he comes into prison by the side of the criminal who after conviction becomes insane. But there is, in fact, a wide distinction between them—the one is absolutely innocent of crime, because he was insane at the time of the act, and he is in no sense a criminal in fact. The other, who is a criminal in the eye of the law, has a "disturbed interval" in his sentence, much as the same mind is said, at law, to have lucid intervals.[3]

The following cases, of which brief notes are given, tried before the Scottish Criminal Courts, have points of individual interest worthy of note and consideration.

1. At the High Court of Justiciary held at Glasgow, September, 1902, a man was indicted on a charge of murder, he having shot another man in the throat with a revolver loaded with ball cartridge and killed him. Having made the post-mortem examination of the body of the deceased man we were in court during the trial and heard the proceedings. On the indictment was the usual list of witnesses. When the case was called the late Lord Young, who was on the bench, asked the Advocate-depute why there were so many medical witnesses in the case. The reply was that the Crown thought it desirable to ask two doctors whose names were on the list to examine the accused with regard to his mental condition lest a plea of insanity might be set forth in defence. His lordship thereupon asked senior counsel for the accused if he was to found on a plea of insanity. To this counsel replied in the negative. Whereupon his lordship said that the two doctors in question need not be called, and might, therefore, be dismissed. The facts of the shooting were clearly proved. It was given in evidence that a quarrel had arisen between accused and deceased, that immediately thereafter accused journeyed into Glasgow, bought a revolver, and returned to the shop of deceased and there shot deceased while sitting at a desk. Not a word was said by prisoner's counsel during the trial, either in cross-examination of witnesses or in his speech to the jury, which even hinted that the prisoner was of unsound mind. Lord Young, however, in addressing the jury, suggested to them that the man must have been out of his mind when he committed the act. After an absence of 25 minutes, the jury returned a verdict that the accused had committed the act with which he was charged, but that he was insane at the time. The court then ordered the prisoner to be confined during His Majesty's pleasure.

Probably there was no one in court more surprised at the verdict than the prisoner himself.

2. At the High Court of Justiciary at Edinburgh, on Sept. 18th, 1902, a man was tried before the Lord Justice-General and a jury on a charge of

[1] Session Papers, 1898.
[2] 2 K. B. 81, 1903.
[3] Medico-Legal Journal of New York, September, 1898, p. 263.

having murdered one of the lecturers of Surgeons' Hall and another man, by shooting them. Counsel for the defence contended that the prisoner was insane at the time of commission of the act, but he contented himself with leading that view by cross-examination of witnesses and did not call expert medical evidence. The Solicitor-General, who conducted the case for the Crown, in his address to the jury said that in view of the defence set up for the accused there were three possible verdicts before them—viz., guilty of murder, guilty of culpable homicide, or they might acquit the prisoner on the ground of insanity. Counsel for the prisoner argued that prisoner was insane, but if he had failed to prove that to their satisfaction he suggested that they should find that the prisoner had no felonious intent in his act, that he was not guilty of murder but of culpable homicide.

The Lord Justice-General in summing the case dealt with the alleged mental defect of the prisoner at the time he committed the act. He remarked that it had been said on prisoner's behalf that when he did these acts he was not morally responsible for what he was doing. His Lordship did not understand that it was disputed that the prisoner was aware that he was shooting the men to death. The jury would probably think he was aware, and, if so, the question they would have to decide was: What was the effect of the mental alienation which was said to have existed, and which, it seemed to him from the evidence, did undoubtedly exist to a very considerable extent. He would say, however, that the mere fact of a person suffering from a certain degree of mental alienation or mental delusion would not necessarily exempt from criminal responsibility, and in order to exempt from liability to punishment insanity must amount to such an alienation of reason that the accused did not know the nature and quality of the act which he had committed, or if he did know the nature and quality, was in such a state of mind that he was not aware that it was wrong. But mental unsoundness, if not of such a degree as to bar trial or exempt from punishment, might still be present in such a degree as to reduce the offence from a higher to a lower class; for example, from murder to culpable homicide. If, however, the prisoner had mental capacity to know that his act was contrary to the law and that he was breaking the law, he was responsible. Unless they thought it was established that the accused, when he committed the act, was in such an insane condition that he was not aware of what he was doing, or that he had a total absence of control so as not to be able to give effect to his knowledge, it would be their duty to find against him on the murder charge. If they thought the evidence was such as to bring in extenuating circumstances as regarded his knowledge and his condition, they might bring in a verdict of culpable homicide. It was apparent from the evidence that the prisoner had got into a condition of ill-health, mental and physical, different from that which he had formerly enjoyed.

The jury returned a verdict of culpable homicide by a majority of 1, and the prisoner was sentenced to penal servitude for life.

3. Cumnock poisoning case. A man was brought before the same court at Edinburgh in March, 1907, on the charge that on Nov. 19th, 1906, he sent by post to W. L. in Old Cumnock a cake of shortbread having a covering or layer of icing adherent thereto, with which icing he had previously mixed a quantity of strychnine, his intention in so sending the cake being to poison the said W. L., and said cake having been delivered to the said W. L., a portion of said cake and icing was eaten on Nov. 23rd by the housekeeper to the said W. L., in consequence of which she died, and that he did thus poison her and did murder her.

The Solicitor-General, who prosecuted, put forward the plea that accused was insane and incapable of pleading. This was opposed by counsel for the accused, who asked that a plea of not guilty should be accepted. On account of the unusual course which was proposed by the Crown, the special plea was heard before several judges. The Solicitor-General said that the ordinary procedure had been followed in the case. The accused had emitted a declaration on Nov. 29th before the Sheriff, and he was committed for trial on Dec. 8th. After the latter date, it came to the knowledge of the Public Prosecutor that accused was probably insane. Accused was thereupon placed under medical supervision, and reports from skilled medical men were obtained that accused was insane. At the pleading diet held in Ayr on March 8th, 1907, a medical certificate having been produced to that effect, the Sheriff-substitute did not call upon accused to plead. Accused was in the same condition now as he was then. The statutory procedure came under Section 37 of the Lunacy (Scot) Act of 1857 (20 & 21 Vict., cap. 71), which enacted that where any prisoner charged under any indictment for the commission of any crime was found to be insane, such prisoner could not be charged under such indictment; but nothing was said in that section whence the information of insanity might come to the court. If there was a doubt as to the sanity of a prisoner, then an inquiry was to be held. While no reference was made in the Act as to the particular mode by which the inquiry was to be prosecuted, the established practice of the High Court, followed for more than a century, was that the investigation should be conducted by a judge without the intervention of a jury. The same section further enacted the procedure to be followed where, after the trial had commenced, the accused having pleaded, it appeared he was insane. Founding upon quoted cases, the Solicitor-General held that he was entitled to become the channel of communication to their lordships of the doubt as to the sanity of the accused now before them. It might be said that the Crown, when they came to the knowledge that this prisoner was insane, should have stopped proceedings and should have acted under Section 15 of the Lunacy Act of 1862 (24 & 25 Vict., cap. 54). He held, however, that that section did not apply in a case of this kind but was intended to apply only in cases of assault and other offences inferring danger to the public by insane persons. But this prisoner had never been outrageous nor had he exhibited at any time any evidence of homicidal tendencies; on the other hand, indeed, his demeanour had always been placid and calm, therefore the last-quoted Act did not apply in his case.

Counsel on behalf of accused urged that the course now being proposed by the Crown was improper and incompetent. Accused had been arrested on Nov. 23th in his own house where he had long resided, and in a neighbourhood where he was well known. He was charged with the crime of poisoning but he protested his innocence. Before the Sheriff also, he did likewise. It was only after he had been in prison for 87 days that an indictment was served upon him calling upon him to appear at two different diets of court, the first at Ayr on March 8th before the Sheriff, and the second on the present occasion. In that indictment he was charged with murder. Accused was not called upon to plead at the pleading diet either directly or through a law agent, the reason urged for that being that he was insane. Counsel called the attention of the court to the danger of an *ex parte* inquiry as to mental ability, as any law-abiding citizen might be arrested for a crime committed in any part of the kingdom, and in answer to his plea of innocence the Crown might, as now, plead his mental unsoundness. It seemed to him that the procedure in this case was ruled by the Criminal Procedure Act, 1887, Section 24, which made provision for the service of an indictment on accused persons, by Section 25, which provided for two diets of court, and by Section 29, which regulated the procedure to be followed at the first diet. The Crown here had adopted the two first-named sections by serving an indictment and by calling upon accused to appear at two diets, but had failed to obtemper the procedure laid down in the last-named section in respect that accused had not been allowed to plead. His contention was that, having satisfied the provisions of the first two sections, the Crown had no authority in precedent to depart from satisfying the provisions of Section 29. He (counsel) had been instructed by the accused to maintain his innocence, his instructions having been received direct from the accused, these being intelligent instructions and such as he might receive from a sane man. He therefore contended that the procedure at the pleading diet at Ayr was incompetent and irregular in respect that accused had not been permitted to plead, though willing, that the first diet being incompetent, there could be no trial, and that the court should discharge the accused, since he could not be tried under the Criminal Procedure Act, 1887. The Lord Justice-General pointed out that the Sheriff was left in the same position as the High Court now was under the Act; and Lord McLaren said that a prisoner suffered no prejudice whatever by not being asked to plead in the Sheriff Court, since it was the law that whether a man pled guilty or not guilty in the Sheriff Court he could be asked, indeed was asked, in this court to plead again, and could withdraw or could modify the terms of a previous plea.

The court retired for consultation, and, on returning, the Lord Justice-General—Lord Dunedin—gave the judgment. He said it was clear from the cases cited that from a very early period it had been the practice of that court, if it was thought expedient, to make inquiry into the state of a prisoner's sanity in order to discover whether a prisoner should or should not be asked to plead. He agreed with the view of the Solicitor-General that neither under common law nor under the Act of 1857 was there any limitation to the sources of communication respecting a prisoner's sanity, and he was satisfied that the conduct of the Crown in this case was not only justified, but was in every respect eminently proper. It seemed to him if the Crown had in their possession certificates from doctors it would not have been right for the Crown authorities to have left the court in ignorance of what they knew. Referring to the statement of prisoner's counsel that he had received instructions from the accused such as he would have received from any sane man, and to his argument that as the prisoner had not been called on to plead at the pleading diet the subsequent proceedings were vitiated, his Lordship did not think that that contention could be sustained. His view was that accused had suffered no prejudice in not being allowed to plead before the Sheriff, and that the Sheriff having said he would reserve the matter for the consideration of the High Court, he had done quite properly. His Lordship did not see any necessity for a preliminary investigation as to the sanity of the accused, because it was open to the jury to say at the conclusion of the evidence whether he was insane at that moment, which would end the matter, that he did not commit the crime, or that he was insane when he did commit the crime. He therefore proposed that the court should call upon the prisoner to plead. The other judges having expressed their concurrence, retired from the bench.

The Lord Justice-General then asked the prisoner if he was guilty or not guilty, to which the prisoner replied, "Not guilty."

In the evidence it was shown that prisoner had on several occasions bought strychnine for the purpose of destroying rats in his house and premises, that the strychnine had been so employed, but no strychnine had been found either in possession of the accused at the time of his apprehension or in his house when searched. The medical evidence showed that accused had been subject to epileptic fits for several years, at times did strange things and performed curious actions, but that at no time had he ever exhibited any characteristic fury after the fits. The one point which seemed to connect the prisoner with the crime was certain similarities between the handwriting of accused and the handwriting on the label of the parcel containing the cake and a card of greeting which was contained in the tin box enclosing the iced cake. Strychnine was found in the icing of the cake only, and was not present in the substance of the cake. It was shown that the icing had been put on the cake by a non-professional hand. There was no evidence directly showing that this was the act of the accused or to connect him with the posting of the parcel, the evidence being entirely circumstantial. Neither was there any motive disclosed for accused's alleged act.

In addressing the jury on behalf of the Crown at the conclusion of the evidence, the Solicitor-General said that the jury might have at least three questions to consider, but they might have only one. The first question was: Whether or not the prisoner was now insane. If they found the prisoner to be now insane, then they had no further question to consider: they would not acquit him, and they would not convict him: they would simply find him insane, and he would be confined and be taken care of. His contention from the evidence was that the prisoner was now and had been suffering from chronic epileptic insanity. If, however, the jury took the view that the prisoner was sane, they would then have to consider whether or not he was guilty of the crime with which he was charged. No witness had seen prisoner despatch the parcel, and this was a case of circumstantial evidence—they must rely on a chain of facts all pointing in one direction or another. In his opinion that chain pointed unmistakably and unerringly to the prisoner as the man who despatched the parcel.

Counsel for accused submitted that the course adopted by the Crown was a weak and cowardly course. What right had the Crown to indict a fellow-citizen of a crime so heinous and detain him in gaol for a period of 110 days, to indict him after he has been detained for 80 days, and then at the end of a three days' trial say to them (the jury) that it did not matter whether he was guilty or innocent, and ask them to take upon themselves the responsibility of treating the prisoner as though he were guilty, and of pronouncing against him a verdict that he was in that state that he could not instruct counsel, and, further, that he was not entitled to have his innocence proclaimed? He as counsel for the prisoner had had the advantage which the jury had not had of

interviewing his client, and he had received from him the clearest and most specific instructions in connexion with the defence of his case. His contention was that the case of the Crown from beginning to end rested upon an unfortunate resemblance between the writing of the accused and the writing which was upon the label of the parcel. He thought there was much in the case which indicated that more than one person had been engaged in the sending of the cake. But in respect even of the handwriting, if they took the view of Dr. Birch, whom he had called as his witness on handwriting, the difference of the writing on the card of greeting found in the box and on the label of the parcel pointed in the direction of a conspiracy. He argued that the whole of his client's time on the day of Nov. 19th had been completely accounted for, that from beginning to end there had been no trace of his having despatched any cake or of having mixed with it any icing, the ingredients of which contained the strychnine, and that it was an absolute and entire impossibility that the prisoner could have purchased the cake and put on it the icing during the interval of his arrival in Glasgow and his reaching the grocer's shop. Moreover, there was no motive of the slightest sort or description suggested for the accused acting as he had been charged. He therefore implored them to consider the guilt or innocence of the prisoner.

The Lord Justice-General, in charging the jury, said this was in every respect a painful case, one full of responsibility from which he could not relieve them. He could not agree with the strong remarks of the learned counsel for accused. That a dastardly crime had been committed there was no doubt, and if suspicion directed itself to the prisoner the public prosecutor could do nothing else than make such investigations as would enable him, if he thought fit, to put the prisoner on his trial. It was the immemorial practice that where the crime was murder, the person accused should for the moment be imprisoned. During the period of incarceration of the accused certain facts relative to the condition of mind of the accused came to light, so that the Crown thought it consistent with its duty to have the accused examined by men of great experience in mental diseases. The report of these men was that accused was in such a state of insanity as made it expedient for the Crown to make a preliminary investigation with the view of stopping the trial. His Lordship here reviewed the procedure at the beginning of the proceedings, which was ruled by Section 37 of the Lunacy Act of 1857, by which it was put upon the jury to say whether or not the prisoner was insane. On this question he must consider what that class of insanity was. It meant the class of insanity which prevented an accused person doing what a truly sane man would do and was entitled to do—to maintain his plea of innocence and instruct those who were to defend him as a sane man would do. They had heard a good deal from prisoner's counsel about instructions. It was a good enough test, but it was not a complete test. That this prisoner was in a condition to speak intelligently upon many subjects—nay, more, to tell his counsel intelligently what he did on a certain date—not one of them could doubt. But there was grave doubt, and it was for them to consider what the effect of that doubt was, whether, knowing all they did about his history and the history of the disease, accused was in a position to do what a perfectly sane man would do—that is to say, to be certain that, on telling his counsel what he thought, he was really telling the whole story of his life and actions. It was clear beyond all doubt that accused suffered from aberrations. There was the ample testimony of the accused's own medical attendant and of the two lunacy experts, and there was no rebutting testimony adduced on behalf of the accused. On that evidence they had to come to a conclusion, and it was as much their duty to do so as it was their duty to come to a conclusion on the facts. As to the handwriting, he could not believe for one moment that they could have any doubt that it was very much alike; but saying that it was alike was a long way short of saying that it was so certainly alike that they could come to the conclusion that a man should be held as convicted of a crime upon that testimony alone. There were dissimilarities between the two handwritings, and it was upon these that experts fastened. On the general question of similarity he was not sure that they were not as good judges as the experts. But it was a very slender proof, and the handwriting was the one point of direct evidence, and they must in their own mind be very sure that the handwriting was that of the prisoner before they came to a conclusion adverse to him. The questions he asked the jury to answer were these: (1) Is the prisoner now insane? If they answered that in the affirmative they must not, whatever they thought, proceed to any of the other questions. If they answered that question in the negative, then they must answer the question: (2) Did the prisoner send this poisoned cake? And then, if they answered that in the affirmative, they must answer: (3) Was the prisoner sane or insane when he did it?

After an absence of 45 minutes the jury by a majority found the accused to be now insane. Accused was therefore ordained to be detained in a lunatic asylum during His Majesty's pleasure.

4. In April, 1907, a man shot at a medical practitioner and severely wounded him in the thigh. On June 24th he was brought before the Sheriff at a pleading diet antecedent to the session of the High Court in Glasgow. Accused was indicted on a charge of having contravened Act 10, Geo. IV., cap. 38, Section 2. When the indictment had been read, the Procurator-Fiscal informed the Sheriff that since his arrest accused had been examined periodically by two medical men, who had certified him to be insane. A certificate to that effect he then produced, and he asked that accused be not required to plead to the indictment, and that the matter should be left for the consideration of the High Court, as had been done in the case of Brown. This was opposed by the law agent for accused on the grounds (1) that such a course was irregular, and (2) that the accused was not insane. Accused had instructed a perfectly clear defence. The Sheriff announced that he would follow the precedent established in the case of Brown. Prisoner was brought for trial before the High Court on July 2nd.

Lord McLaren asked counsel for accused if accused was to be asked to plead, and on an affirmative reply being given, the prisoner was thereupon asked if he were guilty or not guilty, to which he replied "Not guilty." After some evidence had been led respecting the circumstances of the shooting, and at the conclusion of the cross-examination of the police surgeon who had examined accused after his apprehension, Lord McLaren asked the Advocate-Depute to make it clear whether or not he held that accused was sane, for if he was insane, why was he there? The reply was that the jury, after hearing the evidence, might not agree that accused was insane. Lord McLaren said he should have to direct the jury that it was clearly proved that prisoner had fired three shots at the doctor, and it seemed to him that the position of counsel was becoming reversed. He should have thought that prisoner's counsel would have tried to get him off by pleading that accused was insane, but instead of that counsel was maintaining that accused was sane and was, therefore, responsible for his actions. On the other hand, the Advocate-Depute, who prosecuted, suggested that the evidence might make out accused to be insane. Prisoner's counsel said that he had got notice that the Crown was to oppose a plea from the prisoner, but no notice had been taken by the Advocate-Depute of accused's alleged mental condition. His instructions from the prisoner were that before everything he was to be held sane by the jury. The Advocate-Depute had now stepped in with a new method of criminal procedure. The attitude of accused was that while he deliberately shot at the doctor it was for the purpose of bringing his case before the public, that while he did shoot he was very careful not to kill but merely to hurt the doctor as slightly as he could with the weapon he employed. Lord McLaren then asked: Should not accused have pleaded guilty? To this counsel replied that he had been given notice by the Crown that the question the Crown was to raise before the jury was, Whether the man was sane or not? The court was to understand that instead of defending accused on the ground of insanity, he made no such plea, but that accused was responsible for his actions. The Advocate-Depute said that the view of the Crown was that prisoner was a dangerous subject, and that it was an appropriate method to deal with him as a criminal lunatic, and that steps should be taken so that he might never get out of confinement again.

Two lunacy experts averred that prisoner was subject to delusional insanity, one of them even going the length of saying that accused had been insane since the beginning of 1903 and had continued so ever since.

Evidence for the prisoner was adduced by the prison surgeon and the assistant surgeon, under whose care accused had been while in prison, as well as by a police surgeon who also examined him, by two sons, by other relatives of prisoner, and by the prisoner himself. The medical witnesses said the result of their examinations of accused was that they did not believe accused to be suffering from insane delusions. There might be what might be called delusions, but they were perfectly rational delusions, not insane delusions, as they were based on facts. The prison surgeon said he came first in contact with accused at the beginning of 1904 in connexion with proceedings for the liberation of accused from an asylum. He did not find him at that time suffering from insane delusions, and from more recent examinations of accused while in prison under his care he had seen no reason to alter that opinion. In his opinion, accused was perfectly capable of pleading to this charge and of knowing the quality of the crime with which he was charged. He knew perfectly well that what he did was legally wrong and punishable. Both sons stated that the beginning of the trouble was refusal on the part of their mother to occupy the same bedroom as their father. There had been quarrels in the house on account of that. At that time they had taken the part of their mother, but they had changed their minds owing to facts which had since come to their knowledge. They had become reconciled to their father since his liberation from the asylum, which had been opposed by their mother. They had never seen anything in the conduct of their father that seemed to be irrational or insane. The prisoner then gave evidence on his own behalf. He stated that he was 55 years of age, that he was a Trinity pilot until he was certified to be insane in September, 1903; that he was then earning annually between £400 and £600; that he and his wife lived happily for many years until his wife began to remain out late at night; that he had taken her to spiritualistic meetings, but having decided that they were humbug he ceased to attend them, his wife, however, continuing to attend, notwithstanding his express desire that she should discontinue. In April, 1903, his wife refused to cohabit with him. He did not know until afterwards that an attempt was being made to prove him insane. He was on the bowling-green near his house playing bowls when his little boy came and told him he was wanted in the house. He then gave particulars as to the presence of the two medical practitioners in the house when he arrived there, one of whom was the medical man whom he shot at, and the other a lady practitioner who attended his wife. He did not know that they had come there to examine him as to his sanity; he thought they had come to discuss certain suspicions which had been aroused owing to certain matters, and on that understanding he discussed his domestic relations with them. He was a good deal worried at this time, and he went for a holiday. On his return, on Sept. 10th, he was apprehended by the officials of Gartnavel Asylum, was taken there, and remained in that asylum for four months. All the time he was there his law agents agitated for his liberation. After his liberation he lost his position as a pilot and with that his comfortable income, although he had been given a small annual allowance. He raised an action in the Court of Session against the doctors who had certified him as insane, but failed, and he had a feeling that his case ought to go before a jury. That action was tried before Lord Pearson in November, 1905, for wrongous certification of insanity. He did not desire to kill the medical man nor did he desire to injure him seriously. He had practically followed him all through the day of the affair, was near him on several occasions, and could have shot him in the back, but he refrained as that might have killed him. He waited his chance till he could fire at the fleshy or lower parts of his body, where he could not do him any serious bodily harm. He knew he was committing an illegal act, but he thought it the only way left him to ventilate his wrongs, having no money. He would sooner do ten years in prison than go to a lunatic asylum. He felt very much the stain put upon him by the certification of insanity. At present he felt he was a sane man.

Lord McLaren, in the course of his summing up, said he was bound to tell the jury that, whether they found that the accused was insane when he came to the bar, and was, therefore, unable to plead, or whether they found that he was insane at the time he committed the act charged, accused would be detained as an insane person; but upon his recovery, if it should take place, he would be immediately set at liberty by a warrant of the Lord Advocate or the Secretary for Scotland. It was for the jury to say whether the panel was insane, or otherwise that he was fully responsible for his act, that it was a rash, vindictive, and criminal act, but not under the influence of insanity.

The jury returned a verdict of guilty as libelled, but without intent to do grievous bodily harm.

Lord McLaren in passing sentence said that accused, for reasons which he understood, was conscious of having committed a crime

against the law, and had decided to take the punishment of his crime rather than be sent to a lunatic asylum. As prisoner had been found by the jury to have been of sound mind not only at present but at the time the crime was committed, he must take it that accused foresaw the consequence of his act. He (the judge) could not treat this as a case of sudden assault committed in a moment of anger, because it was premeditated. He quite believed accused's statement that he did not mean to kill the practitioner, but as to his not doing him bodily harm, everyone knew that if one fired a shot, and especially three shots in succession, into a man's body, the risks of injury to life, nay, of risks to life itself, were extremely serious. He could not in accordance with practice and with the facts of the case see his way to give a less sentence than seven years' penal servitude.

5. At the High Court of Justiciary at Edinburgh on May 20th, 1907, a man was tried on a charge of having murdered on April 5th, 1899, his aunt in Wigtownshire, by shooting her. Since the occurrence accused had been confined in Perth Lunacy Prison, and having recovered his sanity had been liberated, but was immediately thereafter arrested. Accused pled not guilty to the charge, a special defence on his behalf having been put in that accused was insane at the time when the crime was said to have been committed. Evidence was led respecting the circumstances of the shooting. A medical witness stated that before the commission of the deed accused had consulted him about arsenical poisoning, and said to him that his relatives were putting arsenic in his soup. Witness saw no symptoms of poisoning in accused, and formed the opinion at the time that accused laboured under delusions. He had also seen accused the day after the occurrence, and he was of opinion that accused was quite unable to understand the character of the act with which he was then charged. Other medical witnesses, experts in lunacy, said that from a consideration of all the facts they had come to the conclusion that accused at the time was labouring under insane delusions of a kind likely to lead directly to the act charged. They had examined him recently, and they were of opinion that he was now recovered.

The Solicitor-General, who conducted the case for the Crown, said to the jury that this was a very peculiar and very unusual kind of case. After the evidence which had been led it was impossible for him to ask them to find and for them to find the accused guilty. The Lord Justice-Clerk, in directing the jury, said that accused was obviously insane at the time when the act was committed, and accordingly, if so, he could not be guilty of the act. He therefore asked the jury: (1) to find that the accused was insane on April 5th, 1899; and (2) to find him not guilty on the ground of his insanity. Although acquitted of the charge in respect that he was insane at the time, and although certified to be sane at the time of the trial, accused was not allowed then and there to go free, but was remitted to the General Prison at Perth until His Majesty's pleasure was known. A petition would have to be presented to the Secretary for Scotland craving for the liberation of the man on the ground of his recovered sanity.

6. In May, 1908, a man was charged with the murder of his wife, the injuries inflicted being of an atrocious character. His wife, who was living apart from him by reason of his behaviour, met the accused on a lonely road, where he attacked her, and with a large stone inflicted so severe injuries on her skull that she died almost immediately. The facts of the assault were beyond dispute. Accused was defended by counsel, one of whom was a King's counsel. On being asked to plead, accused pled guilty. Lord Ardwall declined to accept the plea, and accused withdrew it and substituted a plea of not guilty. Two medical witnesses appeared for the Crown to speak to the mental condition of the prisoner. They had been informed of the accused's history and peculiarities, they had repeatedly examined him, and they had witnessed his demeanour in court, but there was nothing in their evidence which could be construed as inferring deficient or lessened responsibility. Counsel for accused closely cross-examined several witnesses who were friends of accused with the object of eliciting evidence indicative or suggestive of mental derangement. Lord Ardwall directed the jury that there was no room for the idea that the accused was in the eye of the law and in the present state of legal opinion not fully responsible for the act.

The jury unanimously found the prisoner guilty of murder. He was sentenced to death without any recommendation to mercy. The condemned man was taken to the prison of Ayr, where, according to the terms of the sentence, he was to be executed. There was no public petition for a reprieve; on the contrary, local opinion was in favour of the verdict. Preparations were in progress for carrying out the execution, the scaffold had been erected, and the public executioner was in the town. In some way, however, not publicly known, the Secretary for Scotland sent a commission of mental experts to Ayr 15 days after the trial, and six days before the date fixed for execution, with a view to further examination of the condemned man, and to report. What these experts reported is not known, but it is a reasonable inference that from their examinations they did not find evidence to warrant them reporting that the convicted man was insane, because a respite only followed, which arrived 14 hours before the time fixed for execution, a respite not for the purpose of sending the man to a lunatic asylum, but, as events proved, for the purpose of sending him to penal servitude for life.

The foregoing cases show sufficient variations in the incidence of insanity in relation to the commission of crime and the practice of the law as are likely ever to come under the consideration of the Scottish Criminal Courts. But before discussing their details it will, perhaps, be well if the statutory enactments regarding procedure in cases in which insanity is pled in bar of trial or in bar of sentence should first be considered. These are to be found in the Lunacy (Scotland) Act, 1857 (20 & 21 Vict., cap. 71), ss. 87, 88, and 89, and in the Lunacy (Scotland) Act, 1862 (25 & 26 Vict., cap. 54), ss. 15 and 19.

Section 87 of the Act of 1857 reads as follows:—

Where any person charged under any indictment or criminal libel with the commission of any crime shall be found insane, so that such person cannot be tried upon such indictment, or if upon the trial of any person so indicted such person charged with such indictment or criminal libel shall appear to the jury to be insane, the court before whom such person shall be brought to be tried as aforesaid shall direct a finding to that effect to be recorded, and thereupon such court shall order such person to be kept in strict custody until His Majesty's pleasure shall be known; and it shall be lawful for His Majesty to give such order for the safe custody of such person so found insane during his pleasure in such place and in such manner as to His Majesty shall seem fit.

Section 88 says:—

In all cases where it shall be given in evidence upon the trial of any person charged under any indictment or criminal libel with committing any crime or offence that such person was insane at the time of committing such crime or offence, and such person shall be acquitted, the jury shall be required to find specially whether such person was insane at the time of the committing such crime or offence, and to declare whether such person was acquitted by them on account of such insanity; and if they shall so find and declare, the court before whom such trial shall be had shall order such person to be kept in strict custody in such place and in such manner as to the court shall seem fit, until His Majesty's pleasure shall be known; and it shall be lawful for His Majesty to give such order—[&c., as in previous section].

Section 89 provides for the case of a prisoner who exhibits insanity when in confinement as a prisoner under any sentence or under any charge of any crime or offence, or under any civil process. In such case the sheriff shall inquire, with the aid of two medical persons, as to the insanity of such prisoner, and if it shall be certified by such sheriff and such medical persons that such prisoner is insane, it shall be lawful for one of His Majesty's Principal Secretaries of State, upon receipt of such certificate, to direct by warrant under his hand that such person shall be removed to an asylum as the said Secretary of State may judge proper and appoint; and every prisoner so removed under this Act from prison to an asylum by reason of his insanity shall remain in confinement in such asylum until it shall be duly certified to one of His Majesty's Principal Secretaries of State by two medical persons that such person has become of sound mind, whereupon the said Secretary of State is hereby authorised, if such person shall remain subject to be confined in custody, to issue to the superintendent of such asylum directing that such person shall be removed back from thence to the prison or other place of confinement from whence he shall have been taken, or, if the period of confinement of such person shall have expired, that he shall be discharged.

Section 15 of the Act of 1862, which repealed Section 85 of the Act of 1857, provides that when the lunatic shall have been apprehended, charged with assault or other offence inferring danger to the lieges, or when any lunatic shall be found in a state threatening danger to the lieges or in a state offensive to public decency, it shall be lawful for the sheriff of the county in which such lunatic may have been apprehended or found, upon application of the procurator-fiscal or inspector of poor or other person, accompanied by a certificate from a medical person bearing that the lunatic is in a state offensive or threatening to be offensive to public decency, forthwith to commit such lunatic to some place of safe custody. Thereafter the sheriff shall give public notice that he proposes on a date to be named in such notice to inquire into the condition of such lunatic. Section 19 deals with the procedure to be followed in the case of any convict or person confined in the General Prison at Perth who at any time within 60 days of the expiration of his sentence is certified to be insane, and for the treatment of such convict or person, if thought fit, in an asylum rather than in prison.

Having briefly glanced at the law on the subject of lunacy in relation to criminal matters, I propose now to deal with the cases already discussed. It will be observed that each of these cases bears some individual peculiarity which differentiates it from the others.

In the first case the peculiarity consists in the fact that although there was no plea of insanity, nor indeed any insanity founded upon, the judge was the first and only person to suggest in his directions to the jury insanity in the prisoner. This appeared to be at the time, as it really was, a most unusual procedure. While it is unquestionably the duty and function of a judge to see that every prisoner has a fair trial and that nothing is lost sight of which may be put in his favour, it is the first case within my knowledge where, a prisoner being defended by senior and junior counsel, and insanity has not been any part of the defence, the judge interposed his suggestions of the insanity, and therefore the irresponsibility of the prisoner. It would almost seem as if the judge had believed that the prisoner had not been efficiently defended.

The second case differs from the first. Here there was evidence indicative of some measure of mental unsoundness;

but although the judge said to the jury that the evidence led pointed to the fact that the prisoner had got into a condition of ill-health, mental and physical, different from that which he had formerly enjoyed, the jury found the prisoner guilty of culpable homicide by a majority of one.

The third case seems at first sight to be somewhat extraordinary. One cannot help thinking that the proper method of reaching the true conclusion in this case had not been adopted, while at the same time it is not easy to suggest a better. Doubtless the element of unsatisfactoriness consists in the fact that an accused man whose sanity and fitness to plead had been challenged at the beginning of the case, and who had been found to be insane at its finish, had been permitted to plead, and also, perhaps, because after being permitted to plead and after all the evidence had been led on both sides, no finding was required of the jury as to whether or not the accused committed the act charged against him. The case is further noteworthy in that it signalised a notable departure from the practice of the courts in like cases. For the previous century, when a plea in bar of trial on the ground of insanity had been put in, the practice was for the court, without the aid of a jury, to determine the issue, irrespective of whether the plea had been put in by the defence or the question had been raised by the prosecutor. In this case, it will be remembered, the issue was raised by the Crown. The last previous case in which similar circumstances obtained was the somewhat famous case of Alexander Robertson, alias "Dundonnachie," which came before the High Court of Justiciary at Edinburgh on March 30th, 1891.[4] The question of the sanity of Robertson having been raised before the court, Lord Justice Clerk Macdonald (Lord Kingsburgh) himself determined the issue without the aid of a jury. In all the cases in which I have been engaged where the plea of insanity in bar of trial was raised by the defence, the issue was always determined by a judge alone. According to the same authority, "Where such a plea is tendered, proof in regard to it may be taken by the judge without impannelling a jury. If present insanity is proved, the court find that the accused cannot be tried, and order him to be confined until the Royal pleasure be known. Although no question as to sanity be raised by the accused, the prosecutor may raise the question, and the court, if they shall see cause, will, *ex proprio motu*, investigate whether the accused be a fit subject for trial or not."[5]

It is not unlikely that the procedure in the third case would have been in accordance with former practice had the question of the man's insanity not been strenuously contested by his counsel, who, as events showed, contented himself merely with a general denial of the averment of insanity and did not adduce any medical evidence to rebut that of the Crown. It seems clear that had the plea in bar of trial been determined by the court without a jury there could have been no trial. As the facts are, however, we behold a prisoner whose sanity is disputed, and who is found insane at the end of his trial, being permitted to tender a plea—a circumstance which could not have happened had the issue of insanity been determined first by the court. Apart altogether from the question of the sanity of the accused, and solely on the evidence led to connect him with the commission of the crime charged against him, we have the greatest difficulty in believing, in the light of the evidence which was led, that any jury, supposing they had had the chance of returning a verdict, could have returned one of guilty as libelled. The only connecting link, if such it may be called, was the alleged similarity of the handwriting, and it is difficult to imagine, in view of the case of Adolf Beck, which doubtless would have been brought before the notice of the court, that the jury would have convicted a man for murder on mere identity of handwriting. It is, perhaps, true that the accused here did not suffer any substantial harm from the course adopted, because by their verdict the jury did not pronounce on the charge itself; at the same time, owing to the fact that the prisoner was allowed to plead and the trial to proceed, and evidence regarding the possible commission of the crime was adduced, the absence of a finding by the jury on the merits left the case undetermined and a certain stigma to remain on the character of the accused in the minds of the general public. It seems to me that the same effect, so far as the accused was concerned, would have practically followed had the questions submitted to the jury for answer been put in a different order. One difference probably would have resulted—viz. that if the jury had answered the second question first, and if the jury had returned a verdict of not guilty or not proven, and if they had then answered the first question in the affirmative, seeing that the issue had been raised in the commencement of the case, the destination of the accused would probably not have been a criminal lunatic asylum but a private asylum, on his friends undertaking to the satisfaction of the court that such would be done. It will be noted that the jury had all the facts before them on which to found a verdict on the merits, but they were precluded from that course by finding a verdict that the accused was now insane. Had the questions been put in the following order such a result as has been indicated would have been possible, viz.:—(1) Did the prisoner send this poisoned cake? (2) Is the prisoner now insane? and (3) If not now insane, was he sane or insane when he did it? This last question, of course, could only require an answer if the jury found that the act had been committed by the prisoner. But putting the questions in the order in which they were presented to the jury by the court, an answer in the affirmative to the first stopped the proceedings, since that answer involved a finding that the prisoner was unable to instruct a defence, and, therefore, could not plead. But if in the light of the evidence adduced we are warranted in the assumption that the jury could not have returned an affirmative answer to the question, Did he send the poisoned cake? we cannot assume that it would be good law to then ask the jury to answer the question, Was the prisoner insane now?

Had the case occurred under English procedure, the problem, I think, would have been solved more easily and more satisfactorily. On the question of the insanity of the accused being raised a jury would have been empannelled and sworn to determine the issue whether or not the accused was fit to plead. If a negative answer was returned by the jury, the accused would then be ordered into confinement to await the Royal pleasure. But if an affirmative answer were given, the jury would again be sworn to try the accused, who would be called upon to plead to the indictment, and the trial would proceed, and the jury would return a verdict. I do not pretend to be able to say, now that the former practice of the Scottish courts has been changed where the question of the insanity of a prisoner is raised by the Crown, whether the powers contained in the Lunacy (Scotland) Acts permit the question of the fitness of such a prisoner to plead to be put as a preliminary inquiry before a jury. It is quite clear, however, that a jury empannelled to try such an accused person as Brown, whose sanity is challenged by the Crown, but which challenge is resisted by the accused, can determine the issue—whether or not the accused is now sane. The decision of the bench of judges appears to us to have been founded on Section 87 of the Act of 1857, which we have already quoted. It will therein be seen that "where any person charged under any indictment or criminal libel with the commission of any crime shall be found insane, so that the person cannot be tried upon such indictment ..... the court before whom such person shall be brought to be tried as aforesaid shall direct a finding to that effect to be recorded, and thereupon such court shall order such person to be kept in strict custody until His Majesty's pleasure shall be known"; but the section goes on to say, "or if upon the trial of any person so indicted such person charged with such indictment or criminal libel shall appear to the jury to be insane" the court shall direct a finding to that effect to be recorded, &c. The reading of the section seems to indicate two alternative methods of procedure, the first not being a trial in respect that the accused is not called upon to plead because of his being found to be insane, the second, however, being a trial, the accused having pleaded and a jury having been empannelled to try him. Section 88 deals with the case of any prisoner where it shall be given in evidence upon the trial that such person was insane at the time of committing the crime or offence with which he is charged. It will be seen in the questions put to the jury by the Lord Justice-General that the procedure in this section was also included. Reviewing the whole procedure in this case one cannot help coming to the conclusion that where a man charged, as this man was, with so dastardly a crime, is not called upon to plead at the pleading diet because of his having been certified to be of unsound mind and unable to instruct his defence, and whose sanity was

[4] 3 White, 6.

[5] Macdonald: Criminal Law of Scotland, third edition, p. 431.

questioned in the same way precedent to his trial, he should either have been subjected to an inquiry as to his fitness to plead, or, having been allowed to plead, that the jury ought to have been called upon to say whether or not from the evidence he committed the act charged against him.

The fourth case which we have cited is exactly similar to the case just discussed up to and including the point of procedure where the accused is allowed to plead. It differs, however, from it in the following particulars—(1) there was no doubt that the accused committed the act charged; (2) that accused had already been incarcerated in an asylum for a few months some time previously, but had been discharged therefrom on an action of liberation; (3) evidence was adduced at the trial on behalf of accused by medical witnesses and others to rebut the testimony of the Crown doctors as to his insanity; and (4) accused himself gave evidence on his own behalf, thereby affording an opportunity to the jury to form an opinion for themselves on the question of his sanity or insanity from his behaviour, demeanour, and mode of witness-giving. In the previous case the accused was incarcerated in an asylum on account of an alleged crime which was not proved against him; in this case no attempt was made by the accused to deny the crime charged against him, but he declared himself to be sane and that he would rather suffer ten years in prison than suffer incarceration in an asylum. Both cases are alike in that the whole case—alleged insanity and alleged crime—was placed before a jury, but while in the previous case present insanity was proved the alleged crime was not proved; in this case the alleged crime was proved and the alleged insanity was not proved.

The fifth case, which may be called the Wigtownshire case, contains also certain points of interest respecting lunacy procedure associated with crime. The accused, soon after the commission of the act of shooting and killing his aunt, was sent to an asylum—Perth Lunacy Prison—by the authorities under the terms of the Act of 1857, Section 89, or of the Act of 1862, Section 15. After a residence of eight years in that place he recovered his sanity, was liberated, but was at once arrested on the charge of murder. At his trial the fact that he was found to be insane at the time of committing the act and was placed under care in Perth Lunacy Prison was sufficient evidence of non-liability for the consequences of his act, and the evidence of the medical witnesses satisfied the court that he had now recovered his sanity. But although he was acquitted by the jury on the ground of his insanity at the time, he could not be there and then liberated by the court, but could only be freed after petition and by order of a Secretary of State.

The last case cited (Case 6) is in some respects the most extraordinary case of the series. Here was a man who brutally murdered his wife, who was duly tried and duly defended, whose mental condition had been examined by medical persons who could not, however, declare him to be of unsound mind, who is found guilty and is sentenced to death, on whose behalf there was no recommendation to mercy by the jury nor petition for reprieve by the public, but whose execution does not take place owing to what seems a very unusual intervention of the Secretary for Scotland. It is not publicly known at whose instance the attention of the Secretary for Scotland was called to the case, but the fact remains that by his instructions a commission of lunacy experts was sent 15 days after the trial and six days before the date of execution to the prison in which the condemned man was confined for the purpose of examining him. These experts are presumed to have reported to the Secretary for Scotland, but what was contained in their report is not publicly known. It was publicly announced, however, several hours before the time appointed for the execution to take place that he was reprieved and his sentence respited to penal servitude for life. This procedure gave rise to considerable discussion at the time, and one of the questions then canvassed was the legal position of the Secretary for Scotland in so acting. I have not been able to discover by what powers under the Scottish Lunacy Acts the Secretary for Scotland acted. There is a form of procedure in Section 89 of the Act of 1857 which provides that "in the case of a prisoner who exhibits insanity when in confinement as a prisoner under any sentence or under any charge of any crime or offence or under any civil process, the sheriff shall inquire, with the aid of two medical persons, as to the insanity of such prisoner, and if it shall be certified by such sheriff and such medical persons that such prisoner is insane, it shall be lawful for one of His Majesty's Principal Secretaries of State, upon receipt of such certificate, to direct by warrant under his hand that such person shall be removed," &c. This procedure does not seem to have been followed in the present case, because the condemned man was not respited during His Majesty's pleasure, but respited to penal servitude for life; for if a certificate of insanity after inquiry had been sent to the Secretary for Scotland, the condemned man would have been removed from prison to an asylum, and would not be condemned to penal servitude for life.

It has been suggested in some quarters that this points to a movement toward the abolition of capital punishment. It is only human that juries should shrink from returning verdicts which involve the lives of prisoners, and, perhaps, the histories of several recent cases show a trend of opinion in this direction. I offer no opinion on the question of the propriety or otherwise of such abolition, but so long as capital punishment finds a place on the statute-book the same should be awarded where the law demands it until it be repealed.

Glasgow.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON AN INTERESTING CASE OF MELANOTIC SARCOMA.

BY HENRY BURNS, M.B., CH.B. EDIN.,
SURGEON, ROYAL NAVY; HOUSE SURGEON TO THE DUMFRIES AND GALLOWAY ROYAL INFIRMARY.

THE patient, a man 25 years of age, was admitted to the Dumfries and Galloway Royal Infirmary on July 13th, 1909. His family history was good and free from any story of malignant disease. The personal history showed that about eight months before admission, while at work as a mason, a large stone fell on his left inguinal region. He quite recovered from this accident in a few days and resumed work. Three weeks before admission he noticed a swelling in his left inguinal region and another on the back of his left heel, but he could not state which appeared first. The swellings were neither painful nor tender. That in the groin, at first quite small, gradually grew larger and "black spots" appeared in the skin over and around it; that on the heel, he said, consisted of a hard mass, painful only when his boot pressed upon it, and about the size of a halfpenny. About ten days before admission he observed small black swellings on other parts of his body, chiefly on his chest. He stated that he had been losing weight and strength for some time.

On examination numerous swellings could be seen and felt in the upper part of Scarpa's triangle and in the inguinal region of the left side. They varied in size from that of a pea to that of a walnut; they were hard and neither painful nor tender. The skin over them and for a considerable distance around was studded with small black spots, the whole having a very mottled appearance. On the back of the left heel a swelling, with a circumference equal to that of a four-shilling piece and projecting about a quarter of an inch beyond the skin surface, could be seen. It was coal-black and densely hard, and neither painful nor tender. On other parts of the body—the chest, abdomen, axillæ, and limbs—small lumps could be seen and felt scattered about in the subcutaneous tissue, the ones nearer the surface being black. These were fairly hard and neither painful nor tender. The left lower limb was greatly swollen and œdematous. The patient was quite cheery about himself and his condition. The breath-sounds were harsh in character. The liver was not enlarged, and the urine contained melanin. A small lump was excised from the left forearm and examined. It showed the structure of a melanotic sarcoma.

The course of the disease was as follows. The œdema of the leg diminished greatly by rest in bed. On August 4th the scrotum and penis became swollen and œdematous, while the swellings on the heel and in the groin had increased in size and new swellings had appeared on various parts of the

body. The breathing was now somewhat laboured and the breath sounds were harsher in character. The left leg became more œdematous and ascites developed. By the 20th the mass on the left heel had broken down and so also had a swelling in the right gluteal region. The black nodules had greatly increased in number all over the body and one had appeared on the forehead. The breathing was more laboured and cough had started. The patient was now very depressed and could not sleep except under the influence of morphine. There was dulness over both bases of the lungs and the anterior edge of the spleen could be palpated. On the 26th the abdomen was extremely ascitic and was tapped, 200 ounces of yellowish fluid being drained off. A Southey's tube was inserted. For the next three days the amount of fluid drained off was 50, 62, and 25 ounces respectively. Breathing became very difficult and cough very troublesome. The patient became very restless. On the evening of August 30th he became very cyanosed and died in a few minutes. Throughout the whole course of his illness he never once complained of pain.

Post-mortem examination.—The abdomen and pleural sacs were full of fluid. The omentum was densely infiltrated with the growth and was absolutely black all over. The stomach was affected, as were also the small intestine, large intestine, and rectum. In the liver were several small scattered black nodules; it was slightly increased in size. The spleen was enlarged and had numerous small nodules in it. On cutting it a growth of about the size of a Tangerine orange was discovered and was easily shelled out. The kidneys were not affected. The bladder had numerous nodules in its walls. The peritoneum was studded with nodules. Both lungs were infiltrated with the growth and nodules were found in the pleura and pericardium. The mediastinal tissue was also infiltrated. The sternum itself was black with the growth and could be broken fairly easily. Neither testicle was affected, but the scrotal tissues were greatly indurated. The swellings in the left inguinal region and on the left heel were black all through.

Dumfries.

A NOTE ON THE REMOVAL OF FOREIGN BODIES FROM THE STOMACH.

BY BILTON POLLARD, F.R.C.S. ENG.,
SURGEON TO UNIVERSITY COLLEGE HOSPITAL, LONDON.

I HAVE recently extracted a two shilling-piece from the stomach, of a girl, aged 15 years, without cutting into the stomach, in a way which I have not hitherto seen mentioned, and a short note on the method adopted may perhaps be of interest.

The method was as follows. The operator opened the abdomen by a longitudinal incision through the upper part of the left rectus muscle and seized the coin through the wall of the stomach with his finger and thumb; an assistant passed a flexible forceps, described below, by the mouth into the stomach. The coin was adjusted in the grip of the forceps and care was taken to avoid inclusion of mucous membrane; the assistant then withdrew the forceps and with it the coin.

The method of extraction outlined above was devised by me several years ago in order to remove a halfpenny from a little child's stomach, but it was not then put into practice as the coin was eventually passed *per vias naturales*. For that case I had had a long flexible forceps made after the pattern of Durham's tracheal forceps. The principle of the forceps is the same as that of Toynbee's well-known forceps for the ear. The blades of the instrument, which when uncontrolled spring apart, are fixed to a piece of copper wire, around which a tube composed of spirally coiled wire is placed. The instrument is operated by the handles in such a way that the wire tube slides over the blades of the forceps and brings them firmly together.

For the extraction of the two-shilling piece this instrument was passed with the blades closed. The coin was removed at the first attempt in the way already described. No resistance was felt when the coin passed through the cardiac orifice, nor indeed at any part of its transit through the œsophagus. The abdominal incision was sutured in layers and the patient made a normal recovery.

Harley-street, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

LARYNGOLOGICAL SECTION.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Nov. 5th, Dr. J. DUNDAS GRANT, the President, being in the chair.

The following cases and specimens were shown:—

Mr. G. SECCOMBE HETT: Post-mortem specimens from a case of Chronic Glanders in a man aged 24 years. The principal visible lesions during life had been ulcerations within the mouth, nose, and pharynx. In the lungs and liver the strong resemblance to tertiary syphilitic lesions was noted.

Dr. DAN MCKENZIE: Perforation of the Nasal Septum from Salt Dust in a woman employed in a salt factory. Three other females, out of a total of eight employees, were affected to a less extent. Microscopical sections from the marginal tissues showed typical giant cell systems.

Dr. STCLAIR THOMSON: 1. A woman, aged 46 years, affected with Tuberculosis of the whole of the Left Vocal Cord and the Interarytenoid Space, in whom consolidation of the right apex had been diagnosed. The lesions were completely healed by two months' silence and sanatorium treatment. 2. Two patients, in whom Tuberculosis of the Epiglottis, Cords, Interspaces, and Folds of the Larynx respectively had been arrested by galvano-cautery and sanatorium treatment. It was pointed out that tuberculosis developing in the larynx after the process had been arrested in the lungs did not generally assume an acute form, but was apt to become extremely tedious; also that, in spite of a fair amount of active mischief in the chest, the temperature began to improve with the improvement in the larynx. 3. Papilloma of the Larynx in a boy, aged 6½ years, of four years' duration, cured by tracheotomy and repeated operations with direct laryngoscopy. This case showed the persistent recurrence of papillomata in spite of frequent and complete removal and the natural tendency of the disease to disappear about the age of 6 years. It also emphasised the advantage and harmlessness of wearing a tracheotomy tube, and occasion was taken to decry the useless and crippling employment of laryngo-tracheotomy, as recently proposed, in these cases. 4. A woman, aged 56 years, after Laryngo-fissure for Subglottic Enchondroma. After having been previously shown before the section in 1908 by Dr. A. Stanley Green and Dr. H. Lambert Lack, the enchondroma had been finally removed by laryngo-fissure by Sir W. Watson Cheyne.

Dr. W. JOBSON HORNE: A case of Laryngeal Neoplasm presenting Unusual Features in a woman, aged 65 years. The growth occupied the posterior half of the right side of the larynx and appeared to spring from the ventricle or ventricular band. Pieces had been removed at intervals for microscopical examination, and these sections were referred to the morbid growths committee for report.

Mr. W. STUART-LOW: Three cases of Inoperable Carcinoma, extra-laryngeal, pharyngeal, and lingual respectively, in whom ligation of the thyroid vessels for partial ablation of the enlarged thyroid gland had been performed with great benefit.

The PRESIDENT: 1. Infiltration of the Left Ventricular Band. The patient was a woman, aged 62 years. The infiltrated band bulged so as to cover the whole of the left cord and the anterior part of the right one, occasionally dipping between the cords and preventing approximation. Microscopical examination revealed only inflammatory hyperplasia, and the diagnosis lay between neoplasm and tuberculosis. 2. Epithelioma of the Right Vocal Cord in a man, aged 60 years; removal by thyrotomy. Microscopical examination of the conical outgrowth below the right cord showed early epithelioma. At the operation the right vocal cord with portion of the right arytenoid cartilage were removed and the underlying cartilage was freely scraped. The patient returned home nine days after the operation greatly benefited.

The PRESIDENT and Dr. MCKENZIE showed a case of Epithelioma of the Left Vocal Cord Removed by Thyrotomy.

Mr. H. CLAYTON FOX: Paralysis of the Right Vocal Cord

in a case of Myotonia Atrophica in a man, aged 57 years, who was exhibited in May, 1908, when the opinion of a neurologist was recommended. Dr. Frederick E. Batten supplied an analysis of the case, which was now shown to elicit opinions as to whether the laryngeal lesion was part of the general condition or otherwise.

Dr. IRWIN MOORE showed a case of Partial Fixation of the Left Vocal Cord of 21 years' duration in a man aged 57 years.

Mr. NORMAN PATTERSON: A case of Swelling on the Left Side of the Neck accompanied by Dyspnœa in a male, aged 28 years, for diagnosis. The swelling was opened and the dyspnœa relieved. A sinus remained, along which a probe could be passed for a considerable distance. There was a globular swelling in the region of the left arytenoid and there were signs of tuberculosis of the right apex.

Dr. H. J. DAVIS: A case of Acute Pemphigus of the Larynx in a woman, aged 40 years. Seven days previously dysphagia and loss of voice intervened. There were bullæ all over the body, and the mucous membrane of the nose, lips, tongue, and pharynx were also affected. The condition of the fauces somewhat resembled secondary syphilis. The larynx was raw and blistered, and the cords were a brilliant crimson.

Dr. D. R. PATERSON: Soft Foreign Body in the Bronchus of a child, aged 6 years. A portion of "ground nut" (Arachis hypogæa) had been impacted in the right bronchus for six weeks. It was removed entire, under chloroform through a 7 mm. tube by means of a telescopic forceps having the fenestrated "bean" point. The child made a good recovery.

Dr. G. WILLIAM HILL: (1) A man recently operated on for Epithelioma of the Vocal Cord and ventricular band by laryngo-fissure (a new operating laryngoscope was used); (2) two cases of Malignant Tumours of the Neck to show improvement under treatment by radium; and (3) Epithelioma of the Nasal Vestibules; surgical removal followed by recurrence; now being treated under radium.

BALNEOLOGICAL AND CLIMATOLOGICAL SECTION.

Presidential Address.

A GENERAL meeting of this section was held on Oct. 29th, Dr. ERNEST SOLLY, the President, being in the chair.

The PRESIDENT announced that in pursuance of a resolution passed at the last general meeting the British Balneological and Climatological Society had become converted into a section of the Royal Society of Medicine, dating from Oct. 1st. Dr. Solly then vacated the chair, which was taken by the new President, Dr. LEONARD WILLIAMS. A vote of thanks was proposed to the President, the officers of council, and the secretaries by Dr. THEODORE WILLIAMS, and seconded by Mr. W. LOVE, and responded to by Dr. SOLLY, Dr. F. BAGSHAWE, Dr. R. FORTESCUE FOX, and Dr. F. A. DE T. MOUILLOT.

An ordinary meeting was then held, Dr. LEONARD WILLIAMS, the President, being in the chair.

A paper by Mr. J. J. EYRE (Naples), entitled "The Hygiology of Naples," was brought forward and taken as read.

The PRESIDENT then delivered his address entitled "To Redress the Balance," which was published in THE LANCET of Oct. 30th.

Dr. HARRY CAMPBELL proposed, and Dr. G. W. HAMILTON CUMMING seconded, a vote of thanks for the address, and the PRESIDENT replied.

At 7.30 the same evening the annual dinner was held at Oddenino's Restaurant, Dr. W. Hale White, Dr. H. D. Rolleston, Dr. W. P. Herringham, and Dr. Septimus Sunderland being the guests of the section.

During the evening a presentation was made to Dr. Sunderland in recognition of his services to the society.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION.

Antiseptic Inhalations in Early Pulmonary Tuberculosis.—The Pharmacological Action of Apocynum Cannabinum.

A MEETING of this section was held on Nov. 2nd, Professor A. R. CUSHNY, the President, being in the chair.

Dr. DAVID B. LEES read a paper in which he strongly advocated the use of antiseptic inhalations in early pulmonary tuberculosis. Wearing continuously an oro-nasal respirator of a simple pattern, the patient inhaled the vapour from a solution of carbolic acid, creasote, spirit of ether, and spirit of chloroform. He considered that by this means the disease had been effectually cut short in a series of 30 cases, particulars of which he gave.—The paper was discussed by Dr. W. EWART, who emphasised the fallibility of physical signs. There were present, even in health, great differences in the character of the percussion note and the breath sounds.—Dr. J. GRAY DUNCANSON agreed with Dr. Lees that inhalations were of great value in lessening cough and expectoration.—The PRESIDENT doubted if the effect could be correctly described as antiseptic. The vapour could only be inhaled in very small concentration.

Dr. H. H. DALE read a paper upon the Pharmacological Action of Apocynum Cannabinum. He traced the history of the drug and the vicissitudes which its reputation had undergone. By some it had been dismissed as worthless, by others it had been described as an unfailing specific for dropsy, ascites, and even hydrocephalus. Working independently two recent investigators had each isolated a crystalline substance from the commercial apocynum which was shown by Mr. P. P. Laidlaw and himself to possess a marked digitalis-like action. This substance, unlike the crude preparation, possessed no emetic and no cathartic action. Independently of its action upon the heart and blood pressure no specific diuretic effect could be demonstrated. Dr. Dale illustrated his paper by throwing upon the screen records of the heart beat, blood pressure, and urinary outflow which showed the characteristic action of the drug.

MEDICO-LEGAL SOCIETY.

Presidential Address by Sir John Tweedy.

THE first meeting of the session of this society was held on Oct. 26th.

Sir JOHN TWEEDY, the President, delivered an opening address on the Historic Status of the Professions of Law and Medicine. In studying the history of surgery, he said, he had often been impressed by the frequency with which law and medicine had been found in juxtaposition, sometimes, it was true, at variance, but more often in association as joint labourers in the advancement of knowledge and in the struggle for freedom of thought. It was indeed remarkable how the status and vicissitudes of these two professions had been affected and influenced by the social, economic, religious, and political life in different countries and in different ages. In the Middle Ages law and medicine were the only two secular studies, and they stood in somewhat similar relations both with respect to society and to ecclesiastical authority. During the period of the invasions of the barbarians in western Europe from the fifth to the ninth centuries the scanty remnants of learning were almost entirely in the hands of ecclesiastics, and the practice of medicine was almost monopolised by the regular clergy. Many monks after taking the vow and assuming the habit left their monasteries to follow the secular callings of law and medicine, and so common did the practice become that in the twelfth and thirteenth centuries various councils of the Church or bulls of the Popes forbade the monks to study either civil law or medicine. It was further decreed that anyone leaving a monastery for this purpose without special permission and not returning within two months should be excommunicated. The effect of this upon the practice of medicine was to create a division between surgery and medicine. Many ecclesiastics continued to practise as physicians, but being forbidden to engage in surgical operations, either *propter indecentiam*, or in accordance with the maxim *ecclesia a sanguine abhorret*, abandoned surgery to laymen and came to despise it as a mere handicraft. Such was the origin of modern surgery.

If we cast our glance backwards to ancient Greece and ancient Rome we find a remarkable dissimilarity between the relative status of the two professions. In ancient Athens, while medicine was highly organised, professional lawyers had scarcely come into existence. Hired advocates were expressly forbidden in courts of law, every citizen being presumed by law to be capable of pleading his own cause. A nervous or inexperienced speaker could obtain permission from the judges to call a "friend" or relation to support him, but these friends never developed into professional advocates. The system.

however, created a class of men who made a business of composing speeches to be learned and delivered by others, but the name "λογογράφος" was a reproach, and the perfection of the composer's art was to mask his identity and to disguise his legal learning. This, be it remembered, was at a time when Hippocrates, the Father of Medicine, was collecting or compiling that great body of medical doctrine and practice which dominated Europe for 20 centuries and became the true source of modern medicine.

In ancient Rome, on the other hand, there were but two professions—arms and law. By the one it has been said the Romans conquered the world; by the other they governed it. Medicine as a profession can hardly be said to have existed at all at this time, and the treatment of disease was chiefly by traditional family recipes founded partly on experience and partly on superstition. Most of the physicians who practised in ancient Rome were Greeks, some doubtless mere adventurers, who flocked to the city in search of fame or wealth. There were no legal ordinances regulating the character of medical training, and students acquired their knowledge how and where they liked. The remarkable difference between the position and status of lawyers and medical men in ancient Greece and in ancient Rome was apparently determined by the ethnological, social, and political differences of these two great peoples. All the Greeks claimed a close relationship and a common origin. The Greek citizen was a pronounced individualist and possessed "the love of freedom without the spirit of union." The Romans, on the other hand, were a people made up of many races, and in Rome individualism was suppressed and its activity transformed into a collectivism which concentrated all its energies and activities upon the affairs of the State.

Turning again to the Middle Ages, we find the character and subjects of study largely determined by social, religious, and political conditions. The cloister was the retreat for the learned, and the only subject that was thought worthy of serious study was theology as a preparation for the calling of priest or monk. In the great University of Paris in the twelfth and thirteenth centuries there was no systematic teaching either of medicine or of civil law. Indeed, the study of civil law was for a long time prohibited, as likely to interfere with the study of theology and with ecclesiastical authority. In the south of Europe medicine and law were actively cultivated; indeed, medicine had been studied with considerable success in the school of Salerno as far back as the ninth century. But towards the end of the eleventh century there began the revival of the study of medicine and of civil and canon law in the universities of northern Italy, especially Bologna, partially brought about by the introduction of Arabian writings from Spain. In Italy, secular education had never been completely extinguished, as it had been in the north. The educational traditions of the old Roman world were never entirely broken. When the revival of learning came its most striking effects were seen not in the church schools, but in the schools of independent lay teachers. Between Paris and northern Italy there was, furthermore, a difference in the classes from which students were drawn. It was customary, as Rashdall, in his admirable "History of the Universities of Europe in the Middle Ages," remarks for the Lombard nobility to give their sons a literary education at a time when the knights and barons of France and Germany were inclined to look upon reading and writing as unmanly accomplishments fit only for priests and monks, and especially for monks not too well born. In these circumstances, in Paris, learning manifested itself chiefly in dialectics, especially as applied to metaphysics and theology. In Italy, on the contrary, grammar and rhetoric were the two important studies chiefly as preparation for the work of the notary and pleader. In England the New Learning of the sixteenth century was largely helped by an eminent lawyer and an eminent physician. Sir Robert Rede, Chief Justice of the Common Pleas, founded in 1518 in the University of Cambridge three lectureships on history, logic, and philosophy, which in the year 1858 were consolidated into one which still bears his honoured name. About the same time Thomas Linacre went to Italy for the purpose of learning Greek, and on his return to Oxford taught medicine and Greek. Linacre revived classical medicine in England, wrote grammatical and medical works, and translated from the Greek writers, especially from Galen. To him chiefly is owing the foundation of the Royal College of Physicians of London by Royal charter in the year 1518.

One might collect many other instances from the pages of the history of civilisation of the parts which lawyers and medical men have played in the spread of learning, in the defence of liberty, and of freedom of thought. The formation of this society may be regarded as the crown of this common endeavour. In the growing complexity of civilised society fresh problems are continually forcing themselves upon the attention of thoughtful men. Considerations of public health and well-being have fostered the growth of legislation relating thereto. Much of this legislation, though well-meaning, is imperfect, and very often unscientific and futile, largely, I believe, because legislation has not kept pace with the advance of medical knowledge. A new Organon is required in the investigation of medico-legal cases. The legal maxim, *De jure judices de facto juratores respondent* is, I believe, sacrosanct in the legal mind. To the judge, rightly, is given the interpretation of the law, but to leave to an untrained and unscientific jury the decision as to facts respecting a disputed medical case is very often, I submit, a travesty of justice. Has not the time come for a radical reconsideration of the whole question of medical evidence in courts of law? Perhaps the increased employment of medical assessors in cases where medical or surgical facts or opinions are in dispute would do much to prevent the unpleasant exhibitions which are now too often witnessed in the law courts when cases of this kind are under investigation. This society may perhaps do much to bring about the required readjustment, and if so by this attempt alone its foundation will have been amply justified.

LIVERPOOL MEDICAL INSTITUTION.

The Surgical Treatment of Chronic Constipation.—The Therapeutics of Pituitary Extract.

A MEETING of this society was held on Nov. 4th, Mr. T. H. BICKERTON, the President, being in the chair.

Mr. R. W. MURRAY read a note on the Surgical Treatment of Chronic Constipation. This condition when calling for surgical interference was met with chiefly in women who had suffered from mucous colitis. Reference was made to cases of this nature related by Mr. W. Arbuthnot Lane, who recommended and practised removal of the large bowel. Mr. Murray did not consider so serious a measure justifiable or necessary. Some years ago he suggested treating chronic constipation by bringing the appendix to the surface in order that through it the large bowel might be thoroughly irrigated. Several cases were related in which this had been done with very satisfactory results.—Mr. F. T. PAUL said that he had dilated the anus in cases of uncomplicated chronic constipation with very good result. He thought that Mr. Murray's cases were at least complicated by, if not altogether due to, colitis. He had several times used appendicostomy for this condition and always with success. He wanted to know its value for simple intense constipation. —Dr. J. LLOYD ROBERTS referred to a case of mucous colitis in which after appendicostomy the pain caused by the lavage was so severe that the treatment could not be proceeded with.

Dr. W. BLAIR BELL read a paper on the Pituitary Body and the Therapeutic Uses of the Infundibular Extract in Shock, Uterine Atony, and Intestinal Paresis. After dealing with the work of other investigators who had confined their attention mainly to the anatomy and development of the pituitary body and to the physiological action of the infundibular extract upon the blood-vessels and kidneys, Dr. Blair Bell described the results of his own experiments carried out with Dr. Pantland Hick, and already published, not only upon the blood pressure but also upon the uterus and intestines. Further, he gave an account with cases of the clinical use to which he had put the extract. Hitherto it had only been used as a diuretic in tabloid form. With a hypodermic preparation which had been made for him by Messrs. Burroughs, Wellcome, and Co., both for his experimental and clinical use, and now on the market, he had obtained most striking results. 1. In shock the prolonged period during which the blood pressure was raised made it a most valuable therapeutic agent. 2. In uterine atony powerful and prolonged contractions were

induced so that in such conditions as post-partum hæmorrhage it was specially indicated. 3. In intestinal paresis, post-operative or otherwise, immediate effects were always obtained. Dr. Blair Bell next discussed the origin of the active principle and its probable chemical composition. He also described the method of administration of the extract. Finally, he expressed his indebtedness to his surgical colleagues and other members of the medical profession in Liverpool who had so readily tested the extract and informed him of the results.—Sir JAMES BARR congratulated Dr. Blair Bell on the value of his work. He thought that pituitary extract should be used with caution, and its misuse would bring it into disrepute. This drug was active in producing arterio-sclerosis, it contracted the coronary arteries, and led to their degeneration. When used as recommended by Dr. Blair Bell with low blood pressure no mischief could result, and if reserved for such cases it would hold a valuable position in therapeutics.—Dr. PANTLAND HICK, who had carried out the experimental work with Dr. Blair Bell, drew attention to the danger of using the drug in cases of heart failure.—Mr. PAUL had used it in a case of intestinal paresis after operation with the most remarkable result after all else had failed to give relief.—Mr. FRANK JEANS also had used the drug in several cases and fully confirmed its action on the intestines.—Mr. A. HOPE SIMPSON and Dr. R. J. M. BUCHANAN referred to a case of splenic anæmia with distension and ascites in which the extract had given marked relief over a period of several weeks when given at intervals; the relief was maintained, there was a great diminution in the size of the spleen, and the fluid was kept in abeyance. Dr. Buchanan also referred to the opinion held by Müller and others that the centres for the involuntary action of the uterus, bladder, and rectum were situated in the pelvic sympathetic ganglia, and desired to know if the pars nervosa of the pituitary body could be regarded as an integral part of the sympathetic nervous system, or did the extract act by stimulating the ganglia? He considered that those cases of so-called acute intestinal paresis associated with peritonitis, for which operation had to be performed, were not due to any special affection of the gut itself but to paralysis of the sympathetic nervous system, and the distension was a symptom of this condition, namely, shock.—Dr. E. E. GLYNN believed that the extract would be far less efficacious in intestinal atony due to acute general peritonitis than to other causes.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Valedictory Address.—Fracture-Dislocation of Cervical Vertebra.—Scopolamine-Morphine Anæsthesia.

THE first meeting of the eighty-ninth session of this society was held on Nov. 3rd.

Dr. JAMES RITCHIE, the retiring President, referred to the flourishing condition of the society; he then spoke of the debt of gratitude which it owed to Dr. William Craig, who for 28 years had been editor of its Transactions, also to Mr. David Wallace, senior secretary, both of whom had resigned their offices. He also referred to the many serious losses which the society had suffered from death. Dr. Ritchie then addressed the society on "The Influence of the Tissues of the Body on the Incidence and the Treatment of Disease." He first referred to the rapid advance of the science of medicine and the tendency of the pendulum of scientific theory to swing too widely to one side or the other. Knowledge of the influence of micro-organisms on health and disease showed their great importance, but he believed that there was the tendency to overlook the influence of the soil in which they grew, an error which laboratory workers did not make. In relation to diseases other than micro-organismal, the importance of the constitution did not receive sufficient recognition. He spoke of the chemico-vital processes of the tissues of the body, of the different qualities of plasm and the influence of heredity on these qualities, and gave illustrations from medical practice of the influence of these on health, disease, and longevity. He adverted to the differences and varieties of constitution and described as types, gouty, rheumatic, nervous, bilious, and tubercular, not in relation to external characteristics, but to chemico-vital peculiarities of the cells of various tissues. He next considered the relation of some pathological organisms to the tissues in health, lowered vitality, disease, and injury, referring to immunity, acquired and transmitted, as evidences of the influence of the tissues, specially the blood. He then treated shortly of the necessity of maintaining the power of resistance of the tissues as a prophylactic measure, in addition to the important work of waging a crusade of extermination if possible of pathological organisms. As to treatment of disease, he emphasised the fact that we did not treat diseases as entities, but we treated individuals who suffer from diseases which were modified by the constitution, and that treatment should be modified accordingly. Dr. Ritchie concluded by welcoming Dr. Byrom Bramwell to the presidential chair.

Mr. DAVID WALLACE and Dr. A. BRUCE showed a case and read a communication on a case of Fracture-dislocation of the Axis Vertebra occurring from a unique cause. The patient, a healthy man, aged 40 years, a marine engineer, hearing someone speak behind him, turned his head suddenly and felt a slight crick in his neck. Shortly afterwards he felt a lump in the back of his neck and found that he could not move his head to either side and only slightly forwards and backwards. The occurrence of pain in the back of the head, neck, and shoulders some time later led to a diagnosis of rheumatism. The patient's physician, Dr. W. W. Millard, finding on his return to this country a projection of the back of the neck, consulted Mr. Wallace who diagnosed a dislocation of the upper part of the spine, which was confirmed by a skiagram. There being no loss of motor power in either the upper or the lower limbs it was thought well not to attempt reduction. Some weeks afterwards a slight accident (a child pulling on a shawl round the patient's neck) caused further displacement and produced great pain, paralysis of all four limbs and of the diaphragm, with retention of urine. Next day the patient was admitted to Dr. Bruce's ward, and on the following day, after consultation with the patient's physician, Dr. Millard, the dislocation was reduced by Mr. Wallace. There was almost immediate relief of breathing, the diaphragm commencing to act. In about ten minutes there was a return of movement of the legs, in about 12 hours voluntary action of the bladder, and in a day or two commencing return of the power of the hands. The head was retained in a fixed position backwards on the spine by means first of sand-bags and then of a poroplastic jacket with a head-piece to prevent lateral movement. The patient has made a steady recovery, interrupted only by a short pneumonic attack a few days after the reduction and a slight attack of cystitis. The bones are shown by a skiagram to be in good position. Dr. Bruce thought that the fracture had taken place at the weak point in the odontoid process which corresponded with the epiphyseal cartilage.—Dr. C. W. MACGILLIVRAY asked what was it which really happened when the first accident occurred, for he could hardly imagine that fracture with impaction of the odontoid process could take place merely by turning the head round suddenly.—Dr. BYROM BRAMWELL thought that there might have been latent disease of the cervical vertebræ without symptoms previous to the accident, and he had published a case of caries of the cervical spine in a boy, aged nine years, in which complete recovery took place after there had been total paralysis.—Mr. J. M. COTTERILL related a case which had lately been under his care of a man with fracture of the third cervical vertebra with no paralysis, and due to the patient's neck having been tightly gripped while wrestling.—Mr. C. W. CATHCART, Mr. WALLACE, and Dr. ALEX. GOODALL also took part in the discussion.

Dr. H. TORRANCE THOMSON and Dr. DENIS COTTERILL contributed a paper on the Use of a Combination of Scopolamine and Morphine as an Anæsthetic Adjunct, which we shall report in another issue.—Professor F. M. CAIRD, Mr. ALEXANDER MILES, and Mr. COTTERILL discussed the paper.

The office-bearers for the session 1909–10 are as follows:—President: Dr. Byrom Bramwell. Vice-Presidents: Dr. C. W. MacGillivray, Dr. W. Allan Jamieson, and Mr. J. M. Cotterill. Councillors: Dr. Robert Thin, Dr. G. M. Robertson, Dr. James Ritchie, Dr. J. S. Fowler, Dr. John Cumming, Dr. Theodore Shennan, Mr. A. Scot Skirving, and Mr. David Wallace. Treasurer: Mr. J. W. Dowden. Secretaries: Dr. F. D. Boyd and Mr. Alexander Miles. Editor of Transactions: Dr. D. Chalmers Watson. A hearty vote of thanks

was awarded to Dr. William Craig, who had so ably edited the Transactions of the society for the long period of 28 years.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on Nov. 5th, Mr. C. Gordon Watson, the President, being in the chair.—Mr. Peter L. Daniel read a paper on Latency in Disease or Overlooked Infections. He said that many children born of tuberculous mothers have tuberculous disease, and that of all the children who die in children's hospitals, about 60 per cent. die from intestinal lesions, mostly incipient tubercle. About 50 per cent. of those dying from measles and scarlet fever have macroscopic disease of the antrum of Highmore, mostly a streptococcic infection which is easily lit up. Many girls have vulvar diseases, really gonorrhœal, which, if lit up, can develop pelvic lesions. Abscess of the kidney has been known to develop 15 years after an attack of gonorrhœa. Pneumococci involve many areas and are largely found in peritonitis, the disease probably having spread from the thorax through the diaphragm. Many severe throat attacks are pneumococcic, the germ being latent in the accessory sinuses. Gall-stones owe their origin to the action of germs which set up catarrh of the small bile ducts. Cirrhosis of the liver is not due to the action of alcohol, but to a toxic infection. 80 per cent. of joint troubles are due to septic infection from the mouth and intestine. Sciatica is due to disease of the hip, sacro-iliac or lumbar joints as a result of septic infection. Other instances were quoted in support of the thesis.—Dr. H. M. Spoor read notes of a case of Severe Pruritus Vulvæ in a woman, aged 37 years, which had lasted three years. On examination both nymphæ were very hypertrophied and pendulous, and the surrounding parts showed that leathery appearance associated with repeated scabbing and rehealing. There were piles, which had existed for 20 years, a moist sodden condition of the epidermis, and a thin leucorrhœic discharge from the vagina. The itching was excessive, and treatment, local and general, being unavailing, an operation was decided on, in spite of the fact that the patient was then seven months pregnant. The pendulous nymphæ were completely removed and the cut edges of skin united. The anterior ends of the first incisions were then joined by two curved incisions, one of which passed anterior and the other posterior to the clitoris, which, together with a small area of skin, was thus enclosed between them. This enclosed skin, together with the clitoris, was dissected away, and the wound was closed. A fresh incision was then made on each side from above and to the outer side of the mons veneris downwards, the lower part being parallel to the outer border of the vulva. The skin of the mons veneris was undercut in an outward direction between the anterior ends of these two incisions. At the posterior part of the incisions the skin was raised in an inward direction towards the vulva, and a slight undercutting was done at the outer side of these incisions. The wounds were then stitched up. The patient made an excellent recovery and was immensely relieved. No itching was felt for over a week, but slight symptoms appeared in the skin which had escaped the undercutting process, and these persist, but the inconvenience is no way comparable to the tortures suffered before.

EPIDEMIC INFANTILE PARALYSIS.—It will be remembered that our Berlin correspondent recently reported a widespread epidemic of acute anterior poliomyelitis amongst the children of Westphalia. The same thing has been happening in Holland on a smaller scale. The Leyden newspapers on Oct. 17th published the intelligence that no less than 25 children had been attacked by acute infantile paralysis and a number of parents consequently were keeping their children from school or sending them away into the country. Later intelligence showed that only 17 cases had then been officially reported, none of them of a very severe character. All the patients were under 2 years of age. The *Leidsch Dagblad* of Oct. 21st announced that 21 cases had up to that time been officially certified, all except 2 being in children under 5 years of age. The remaining 2 patients were aged 12 and 8 years respectively. Altogether, since the occurrence of the first cases in August, 24 have been certified in Leyden, which is a town of 55,000 inhabitants; others have occurred in a sporadic fashion in localities more or less distant from Leyden.

Reviews and Notices of Books.

Anatomy, Descriptive and Applied. By HENRY GRAY, F.R.S., formerly Lecturer on Anatomy at St. George's Hospital Medical School. Seventeenth edition. Edited by ROBERT HOWDEN, M.A. Durh., M.B., C.M. Edin., Professor of Anatomy in the University of Durham. Notes on Applied Anatomy, revised by A. J. JEX-BLAKE, M.A., M.B. Oxon., M.R.C.P. Lond., Assistant Physician to St. George's Hospital; and W. FEDDE FEDDEN, M.S. Lond., F.R.C.S. Eng., Assistant Surgeon and Lecturer on Surgical Anatomy, St. George's Hospital. With 1032 illustrations. London: Longmans, Green, and Co. 1909. Pp. 1296. Price 32*s.* net.

THE latest edition of "Gray's Anatomy" may be described as its jubilee number, and in reviewing it we may aptly repeat the opinion we passed on it 51 years ago, when the first edition appeared.[1] "The student of anatomy and surgery of the present day enjoys a great advantage over his predecessors, in having at his command works on the subject of his studies, which not only facilitate his labours, but enable him to pursue his investigations in a scientific and practical manner. We are bound to say that no treatise that has issued from the press for a great number of years is more calculated than the present one to furnish the student and practitioner with an accurate view of the anatomy of the human body, and more especially the application of this science to practical surgery. ..... We are not acquainted with any work in any language which can take equal rank with the one before us."

Although a succession of able editors (and Professor Howden has done his work as well as any of his predecessors—which is a high meed of praise) has greatly altered the original work of Henry Gray, we would extend to the present edition the same favourable judgment we passed on the first. We would note merely that "the advantages which the student of anatomy and surgery of the present day enjoys over his predecessors" have their qualifications. Instead of having to read and digest the contents of 750 pages for examination, as his predecessors did in 1859, he has in 1909 to master 1296 pages, and the number of facts described on each page has increased. The modern editions have become more and more of the nature of encyclopædias, new discoveries being packed into them as was found most convenient, whereas the first edition was a continuous narrative written by one man (polished, if tradition is reliable, by the scholarly pen of Timothy Holmes) and therefore more easily read and remembered by the student. Chapters on histology and embryology, amounting to 177 pages in the present edition, have added to the burden of the modern student of anatomy. His task has been doubled, and owing to the introduction of new subjects of study and to the great expansion of the old, the time in his curriculum allotted to anatomy has been halved. The advantages of the modern student are becoming so burdensome—nay, well-nigh intolerable—that some method of lightening them must be found. "Gray" is, and always has been, the favourite text-book of English students for examinations, and the editor could in a new edition make the student's task more tolerable by shortening the tedious and minute descriptions of the less essential structures, and at the same time he would improve the real practical features of the book.

On the other hand, the work of the present-day student is lightened by the lavish manner in which the last edition of "Gray's Anatomy" is illustrated. It contains 1032 figures, many of them improved by being coloured; the first edition contained 363 figures, an excessive number for an anatomical work of 50 years ago. The modern illustrations, excellent

[1] THE LANCET, Sept. 11th, 1858, p. 282

in many ways, are a miscellaneous assortment, culled from many sources, done, some of them very indifferently, by many artists and reproduced by different technical methods. The original illustrations, most of which are retained, remind us that in the matter of anatomical illustrations we have receded, not progressed; they were a consecutive series of carefully drawn and executed wood-blocks, mostly the work of one man—Dr. Vandyke Carter. His genius as an anatomical draughtsman, as most medical men are aware, did much to secure a popular success for Gray's work, but few know that he owed his training to the Council of the Royal College of Surgeons of England, which at the suggestion of Professor Owen (as he then was) gave its "students in human and comparative anatomy," of whom Carter was one, a very complete training in draughtsmanship under one of the ablest artists of 60 years ago. Students at the present day still benefit by the money so wisely expended by the Council of the College.

One of the outstanding features of the first edition of this work was the introduction of Mascagni's investigations and illustrations of the lymphatic system of the human body, which were imperfectly known in England at that time. We are glad to note that in the present edition the numerous recent researches on this system have been fully noted and illustrated. Another original feature of "Gray's Anatomy" was the application of the rather dry details of anatomy to the work of the surgeon. In the present edition the physician has also been considered; the title has been altered from "Anatomy, Descriptive and Surgical" to "Anatomy, Descriptive and Applied." The sections dealing with applied anatomy have been entrusted to Dr. A. J. Jex-Blake and to Mr. W. Fedde Fedden, who have done their work most satisfactorily. The sections dealing with "regional" and "applied" anatomy have been more closely incorporated in the general text than in former editions, an alteration that has many advantages. So "Gray" remains an admirable modern text-book.

A Text-book of Diseases of the Ear. By P. MACLEOD YEARSLEY, F.R.C.S. Eng., Senior Surgeon, Royal Ear Hospital, &c. With 127 illustrations. London: Kegan Paul, Trench, Trübner, and Co., Limited. Pp. 452. Price 21*s.*

THE first chapter of Mr. Macleod Yearsley's text-book consists of a brief description of the anatomy and histology of the ear, together with a *résumé* of its physiology. The next chapter is devoted to clinical examination, and the principal points which require special comment are duly brought forward, with hints as to the causation of symptoms. These are more fully elaborated when they appear again under special diseases. Mr. Yearsley goes very fully into the tuning-fork tests, and these are dealt with in a way which shows the great advances which have been made in the last few years, and Mr. Yearsley differs from many writers in freely quoting English authors in support of various elaborations of tests, notably that of Rinné; but we notice that he considers paracusis Willisii is not such an unfavourable symptom as is generally supposed. The third chapter deals with diseases of the external ear and the fourth with injuries and diseases of the membrana tympani, to which condition rather more time and space are devoted than is perhaps commensurate to its importance. Then follows a description of the injuries and diseases of the middle ear, in which, amongst a mass of useful matter, a dissertation appears on the correct method of nose-blowing to be used as a prophylactic measure against middle-ear infections. Suppurative conditions of the middle ear form the subject-matter of the sixth chapter, with diseases of the mastoid in the seventh, and intracranial complications in the eighth, these three chapters dealing very fully with the whole range of suppurative otitis media. The description of the Schwartze operation would be better for more detail; the beginner would find it extremely difficult to perform the operation under the instructions given, and the so-called essentials of simple opening of the mastoid are a little vague; for instance, why is it suggested that exposure of the sinus, presumably the lateral sinus, is considered essential? We do not think this is in agreement with the views of most aurists. Though the description is too meagre for the novice it is quite sufficient for the practitioner who wishes merely to refresh his memory. In the ninth chapter Mr. Yearsley treats of subacute and chronic catarrhal otitis media, and in the tenth deals with otosclerosis. The latter chapter gives a complete and very full account of what is known concerning this most obscure complaint and will prove of exceptional interest especially to those who are unacquainted with the latest works on the subject. Under Internal Ear Diseases the labyrinthine operations for vertigo and tinnitus are considered. It is a pity that Mr. Yearsley does not give a full report of the various tests for diseases of the posterior portion of the labyrinth, more especially those elaborated by Bárány. The influence of diseases of the ear described in the twelfth chapter forms interesting reading, though a fuller consideration of the part played by arterio-sclerosis is advisable. The book is well printed and very readable; the illustrations, however, are of unequal merit. We think that this work will prove a very useful addition to the aurist's library. It contains much useful information supplied in a clear, readable, and accurate manner, and shows throughout that it has been written by one with wide experience and sound judgment.

Immunity and Specific Therapy. By W. D'ESTE EMERY, M.D., B.Sc. Lond., Clinical Bacteriologist to King's College Hospital, and Pathologist to the Children's Hospital, Paddington Green; sometime Lecturer on Pathology and Bacteriology in the University of Birmingham. With illustrations. London: H. K. Lewis. 1909. Pp. 448. Price 12*s.* 6*d.* net.

SUCH a work as that here reviewed appeals to a large circle of readers and is of interest not only to the scientific worker but also to the practising physician and surgeon and to the intelligent layman. The subject of immunity is often regarded as though it were divorced from practical medicine, but however inadequate our knowledge may be our plan of medical treatment cannot fail to be coloured by our conception of the natural methods of recovery from disease, and should indeed be based on an intelligent appreciation of these methods. We are, therefore, indebted to Dr. Emery for this lucid account of the present position of our knowledge of immunity. The task he has undertaken is both difficult and somewhat thankless—difficult since as yet we have no thread to guide us through the maze of researches, and thankless in that such a work falls behind in detail even in the writing. In this, however, there is compensation since mere flux of time renders previous works of the same kind inadequate. In the present state of our knowledge it is impossible to find a simple and single explanation of immunity; rather there is evidence of a multiplicity of methods for securing this condition. It is essential, therefore, that in considering the various theories advanced the author should not be a partisan but should hold so far as is possible a judicial attitude in considering the evidence for and against the explanations suggested. Such an attitude is a distinguishing feature of the book. The theories of Ehrlich have played a great part in elucidating our conceptions of immunity and have proved fruitful in suggesting lines of

investigation, but there is no doubt that with the numerous complexities which are introduced to meet new facts the side-chain theory tends to become rather an expression of these facts in the terminology of the theory than an explanation of the phenomena. It is, too, becoming more and more evident that the results of many of the experiments adduced in its support are explicable in terms of the physical and chemical properties of colloidal bodies. Due weight is given to the humoral conception of immunity, but the author appears to end, almost unwillingly, by regarding the phagocyte as of prime importance not only in the combat against infectious disease but also in the struggle against intoxication. The book is not based on original work, and differs, therefore, from the recently published studies by Muir and Browning, but in the later part of the work, and especially in that concerned with specific therapy, the author draws on his experience in estimating the value of the methods used or suggested. Besides the non-partisan spirit in which the theories are discussed, to which reference has already been made, great skill is shown in the way facts only to be found in the detached papers of various investigators are marshalled into their proper places in the chain of argument.

The strange, redundant, and confusing nomenclature which has grown up around the theories of immunity adds not a little to the difficulty of understanding them. The author wisely prefixes a glossary of the terminology with definitions and explanations. Some slips in the book itself seem to show that this is not an unnecessary precaution.

After a preliminary chapter on the meaning of immunity and its relation to recovery from disease the author passes to a chapter on the nature of bacterial toxins as a preliminary to the consideration of immunity to toxins. This involves a review of the subject of antitoxins and of the relations existing between toxin and antitoxin, with the rival chemical hypotheses of Ehrlich and Arrhenius and Madsen, the physical theory of Bordet, and the view that the facts are to be explained by the colloid nature of the interacting bodies. Though naturally humoral ideas are prominent in this part of the work, yet the author accepts the French view that leucocytes play a part in toxin immunity, and draws attention to the fact that recovery from a toxic disease, such as diphtheria, is not brought about exclusively or even mainly by antitoxic action.

The more complicated phenomena of bacteriolysis are next treated with the same lucidity which marks the earlier portion of the work, and with the aid of excellent diagrams which place clearly before the reader the problems and their suggested explanations. It is probably unavoidable in the present state of our knowledge, but it is illogical to invoke a hypothesis as an explanation of one set of phenomena which has already been rejected as untenable when discussing the results of other experiments. After considering agglutinins and precipitins a long chapter is devoted to phagocytosis. In this opsonins and their action are included. The author agrees with the views of Dean and Muir that the thermolabile opsonin is an alexin and the thermostable opsonin a true antibody; he would also regard the immune body as able to function as an opsonin in such dilutions that no bacteriolytic effect would be produced. A valuable chapter on the colloidal theory of antibodies is followed by a judicial summing up of the question of immunity to bacteria, in which the conclusion already referred to as to the importance of the leucocyte is reached. A final section of the book deals with the practical application of the theories which have been discussed, and here the author's considerable experience in the diagnosis and treatment of disease by bacteriological methods is of great value. A bibliography completes the work.

The book is attractive in appearance and well printed, but has apparently been somewhat hastily prepared for the press. There are a considerable number of slips; most of these are of small importance, but some interfere with the argument and pervert the meaning of the author. If Dr. Emery means to keep his work regularly up to date in subsequent editions it would be well if he were to read through this issue very carefully. The merits of the work are great and the defaults are trifling, but there they are.

Kompendium der Topischen Gehirn- und Rückenmarksdiagnostik. Kurzgefasste Anleitung zur klinischen Lokalisation der Erkrankungen und Verletzungen der Nervenzentren. Von ROBERT BING, Privatdozent für Neurologie an der Universität Basel. With 70 illustrations. Berlin and Vienna: Urban und Schwarzenberg. 1909. Pp. 200. Price M.6.

IN his preface the author states the object he has in view in adding to the number of pre-existing volumes on the diagnosis of nervous disease. A concise, practical, and didactic vade-mecum is what he would like this book to be, and it may be at once said that he has succeeded in his task admirably. In teaching so complicated a subject as the diagnosis of pathological processes in the nervous system the dogmatic method has obvious advantages, and calls for no particular apology from the teacher. If it is combined with scholarship we can rest assured that he will not be unduly dogmatic, and that the student will thereby gain a sound and working knowledge of nervous disease. Anatomy is the basis on which clinical information must be established if it is to prove really useful; dissociation of the anatomical and the clinical is fatal to what we may be allowed to call scientific physicianship. In the volume before us Dr. Bing has supplied a succinct yet sufficiently detailed account of the anatomy of the nervous system, and has not hesitated to enter into minutiæ whenever these will serve to elucidate clinical phenomena that may meet the student. He emphasises his various points with the aid of perfectly simple but agreeably accurate diagrams, and the professing neurologist will be struck by their originality and serviceableness. To only one or two must exception be taken, in particular that on p. 61, which purports to represent the segmental areas of the skin. It does not embody the latest and most trustworthy researches on the question, and by being too schematic merely causes confusion.

The book is divided into two parts: the first deals with the localisation of spinal cord lesions, the second with intracranial lesions. A chapter on the anatomy of the cord, in which an excellent description of exogenous and endogenous tracts and their cells of origin will be found, is followed by an account of the apparatus for the transmission of motor, sensory, trophic, and vaso-motor impulses, and the significance of disturbances in each of these is discussed from the point of view of localisation. By study of the data which the author sets out methodically and lucidly the student should have no difficulty in diagnosing a given lesion; its vertical level and its position on that level should alike be determined with a fair amount of ease. Relatively to the space devoted to the cord, too little, in our opinion, has been reserved for a consideration of intracranial disease, yet it is pleasant to find so much incorporated that has not elsewhere, as far as we are aware, found its way into a text-book. This is the case more especially with cerebellar diagnosis. The handling of cranial nerve localisation is exceedingly good; the description of the semeiology is unusually complete and well worth the many pages devoted to it.

By way of criticism a few remarks will suffice. It is undesirable to figure thalamo-spinal tracts when the most recent investigation limits these to a few descending fibres in the posterior longitudinal fasciculus. An anatomical connexion between the seventh cranial nerve and the twelfth nucleus is now discredited. The symptoms of disease of the basal ganglia and of the hypophysis, to mention but one or two, are sketched rather inadequately, and if atypical hemiplegias are to be mentioned at all chronic progressive hemiplegia might have a place among them. It is not the case that in Jacksonian epilepsy bilaterally innervated muscles are always thrown into contraction synchronously on the two sides. Apart from this and similar minor criticism, we have nothing but praise for this thoroughly interesting, readable, and up-to-date presentation of a difficult subject, and we compliment Dr. Bing on having both avoided controversial topics and yet omitted nothing that the practitioner can be likely to want. The place of the book on the shelf of the student and the physician should be, we think, assured.

LIBRARY TABLE.

After-treatment of Operations: A Manual for Practitioners and House Surgeons. By P. LOCKHART MUMMERY, F.R.C.S. Eng., B.A., M.B., B.C. Cantab., Senior Assistant Surgeon, St. Mark's Hospital and Queen's Hospital for Children, London. Third edition. London: Baillière, Tindall, and Cox. 1909. Pp. 251. Price 5*s.* net.—Success in operating depends often not so much on the skill with which the operation is performed, but rather on the care and attention devoted to the patient subsequently. In minor operations very little is required, but in those more serious surgical cases in which shock and hæmorrhage are liable to follow the whole of the difference between recovery and death may depend on the care and attention for a few hours after the operation. In hospital practice the duty of seeing that the patient recovers from the operation itself devolves chiefly on the house surgeon, but in private practice the surgeon himself is generally responsible for what is done. We spoke favourably of this work on its first issue, for it was the first attempt to systematise the treatment of patients after operation, and the present volume only differs from the early issue in the more complete arrangement of the material and in the bringing up of the knowledge to the present date. We are glad to see an account of the use of proctoclysis in cases of general peritonitis, but it would have been well to make the description fuller, for it is hardly sufficiently detailed to enable a surgeon to employ the procedure who has never seen it.

New Ideals in Healing. By RAY STANNARD BAKER. London: T. Werner Laurie. Pp. 105. Price 2*s.* 6*d.*—*Health, Physical and Mental.* By C. W. JOHNSON. London: The Theosophical Publishing Society. 1909. Pp. 143. Price 2*s.*—The above two little books both deal with practically the same subject—that is to say, the influence of the mind over the body and the tendency of modern medicine to rely less on drugs than formerly, while endeavouring to put the body into the best condition for utilising the natural forces of resistance. Mr. Baker's book is divided into two portions, of which the first deals with the "Emmanuel Movement" in Boston, and the second with the "Social Service Department" at the Massachusetts General Hospital. As to the former, it would appear from the account given by Mr. Baker to be conducted upon sensible lines, and the clergy obviously take care not to encroach upon the territory which is rightly occupied by the physician. The latter movement is one which is decidedly a good one. It is an attempt by a large general hospital to unite such methods of help as in this country are carried out by the various Samaritan funds, health visitors, and such agencies as the Charity Organisation Society.—Mr. Johnson's book is, we must say, a lamentable instance of a work written by an earnest person, with every desire to be fair, upon a matter with which he obviously has but the slightest acquaintance. He says in his preface that he is indebted to medical friends. It is a pity that the medical friends did not save him from the error of describing a well-known physician as "Dr. Williams Osler, lately Regius Professor of Medicine at Oxford." With his dictum that air, food, water, rest, and exercise are five necessities for health we agree, and that a person possessed of the *mens sana* in the *corpus sanum* is far less likely to break down in health than one who is not so dowered is also a truism, even if we remember that the word *mens* in this connexion includes the spiritual as well as the psychical side of human nature.

Pocket Medical Dictionary in Eight Languages: English, German, French, Italian, Japanese, Russian, Spanish, and Hungarian. Edited by Dr. J. MEYER, Berlin, in collaboration with Dr. O'C. FINIGAN, M.D. Berlin, M.R.C.P. Lond., Assistant Physician, German Hospital, Dalston, London. London: W. Lockwood and Co.; Berlin and Vienna: Urban and Schwarzenberg. 1909. Pp. xxviii.–788. Price 20*s.*—The great extension of medical literature requires that any one who wishes to be abreast of modern progress must be acquainted with more than his native language, and it is often necessary also in seeing foreign patients for the medical man to be able to express his meaning in a foreign tongue. For purposes such as these this dictionary should prove very useful, and as it deals with seven foreign languages in addition to English it possesses exceptional advantages. It is of interest to note the inclusion of Japanese in the list of the chief scientific languages; it is hardly necessary to say that the Japanese words have been transliterated, and this has also been done in the case of the Russian words, though here it was not so necessary. The arrangement of the work is as follows. The words in all the eight languages are placed in their alphabetical order, but the explanation of each word is given in German, to which the reader is referred, where he will find the eight words or phrases expressing the idea in the eight languages. For instance, if we wish to know the foreign equivalents of "pain" we look up "Pain" and find that we are referred to "Schmerz," and beneath that we find (*e*) pain; (*f*) douleur; (*i*) dolore; (*j*) itami, totsu; (*r*) bolj; (*s*) dolor; and (*u*) fajdalour; the letters in brackets indicating the language to which the following word belongs. The errors present, which we could detect, are very few, and this is remarkable when we consider the large number of words included, but the editor has had the assistance of a native of the country of each language represented, which was clearly the only way to ensure accuracy. We may mention one slip—the French for "tongue depressor" is not *pince à langue*, which means tongue forceps, as given correctly in the next column. We can praise the book cordially as well conceived and carefully executed, while the printing and binding are good. We would suggest the desirability of the inclusion of some phrases and sentences if that could be managed without unduly increasing the size of the book.

A Manual for Students of Massage. By MARY ANNA ELLISON, Member of the Incorporated Society of Trained Masseuses. Third edition. London: Baillière, Tindall, and Cox. 1909. Pp. 189. Price 5*s.* net.—It is very desirable that those men and women who devote themselves to the practice of massage should possess an intelligent knowledge of the superficial structure of the body which they manipulate. But all who consider the subject may not be inclined to agree as to the exact amount of anatomical knowledge which it is necessary for practisers of massage to possess. On

the whole, it is probable that it is better for them to know a little too much rather than a little too little, but we utterly fail to see the object of imparting to them some of the anatomical knowledge contained in the book. For instance, what can be the object of figuring and describing the vomer or the ethmoid bone? And we think that it is rather a waste of space to devote a whole page to an account of the sympathetic plexuses. The illustrations contained in the anatomical portion are not always happy; they appear to be reproductions of pen-and-ink sketches of the bones and other objects, and many of them are certainly far from accurate; for instance, the drawings of the radius and ulna are woefully out of proportion. More useful, probably because written with fuller knowledge, are the chapters devoted to practical massage, and the description of the Nauheim treatment is likely to prove useful. A short account is given of Fraenkel's method of treatment of locomotor ataxy, and the description of the Weir-Mitchell treatment is also good. We can see no necessity for the chapter on ductless glands, which is entirely out of place in a work such as this. The description of the surface markings would have been more reasonably placed with the general account of anatomy. The plates representing the muscles are unnecessarily elaborate, and the same may be said of the tables giving the origin, insertion, action, and nerve supply of the individual muscles. The book has many good points in spite of the large quantity of extraneous matter that it contains, and we hope that in a future edition the author will exercise a wide discretion in curtailing the descriptions of anatomy so as to accommodate them more accurately to the needs of students of massage.

Home Life in Ireland. By ROBERT LYND. London: Mills and Boon, Limited. Pp. 317. Price 8*s.* net.—We feel some diffidence about attempting a review of a book dealing with Home Life in Ireland, for the subject almost necessarily connotes a discussion of matters deeply concerned with both politics and religion, and with these two subjects it is not our province to deal except in so far as they may affect medical matters. But nevertheless we offer our warm thanks to Mr. Lynd for a sympathetic and brightly written book which touches at most points the at present unsolved problem of Ireland and Irish government. Mr. Lynd is an Irishman himself, but he writes, as the Book of Common Prayer says, quite "indifferently." He appreciates to the full both the faults of the governed and of the governors, and there are plenty on both sides. There is manifest room for improvement in the condition of the factory-workers in the textile trades, and the payment of home-workers is in no way better These facts are set forth with exceeding clearness by Mr. Lynd in his fourteenth chapter, facts supported by figures which are not his own but taken from the reports of Miss Martindale, an inspector under the Factories and Workshops Act. Mr. Lynd draws attention to the fact that the Irish are brought up on tea, white bread, potatoes, and American bacon, and argues that if more nourishing food were in use disease would not be so rife. Quite so; but in a desperately poor country cheapness has always to be the first consideration, but we must not allow ourselves to drift here into considering how and why Ireland is poor. Altogether Mr. Lynd's book is of extreme interest, and it is possible that some in high authority in Ireland might read it with advantage.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN-SQUARE (UNIVERSITY OF LONDON).—A special course of four lectures on the Diagnosis and Surgical Treatment of Diseases of the Nervous System will be given on Mondays, Nov. 22nd, Nov. 29th, Dec. 6th, and Dec. 13th, by Sir Victor Horsley, F.R.S. Cards of admission may be obtained from the secretary of the hospital on payment of 1 guinea.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

"TABLOID" HYPODERMIC, TYRAMINE.
(BURROUGHS, WELLCOME, AND CO., SNOW-HILL BUILDINGS, LONDON, E.C.)

Tyramine is a good example of the excellent scientific work which is being conducted in the Wellcome Physiological Research Laboratories. Tyramine has been shown to be the chief active principle of aqueous extract of ergot and consists of the organic base para-hydroxyphenylethylamine in a state of purity. The tyramine hypodermic tabloid contains 0·005 gramme of the base. It is stated that the drug produces a marked rise of blood pressure with greatly improved vigour of the heart's action. Its administration is suggested in shock and for producing contraction of the uterus post partum.

HOOKER'S MILK COCOA.
(THEW, HOOKER, AND GILBEY, LIMITED, BUCKINGHAM, AND DONINGTON HOUSE, 30, NORFOLK STREET, STRAND, LONDON.)

Analysis indicates this preparation to be of decided nutritive value. It contains all classes of food materials, proteins, fats, carbohydrates, and mineral salts in excellent proportions. Moreover, a considerable part of the carbohydrate and of the protein constituents is soluble in water. The flavour of the preparation is attractive. We found that the total nitrogen amounted to 2·73 per cent., of which 1·61 per cent. was soluble in water. It was proved that not only did the aqueous solution contain the theobromine of the cocoa but part also of the milk protein. The fat amounted to 22·00 per cent. and consisted of a mixture of cocoa and milk fat, the latter predominating. The total soluble matter amounted to 47 per cent. The mineral matter was 4·50 per cent., containing 0·85 per cent. phosphoric acid. The preparation is a good combination of milk and cocoa constituents, which have been so modified as to render them directly available for nutrition. Its food value is indisputable.

(1) LUMIÈRE'S CRYOGÉNINE; (2) HERMOPHÉNYL; (3) HÉMOPLASE; AND (4) GELÉE.
(LONDON AGENCY, A. F. JACQUIER, 104, HIGH HOLBORN, LONDON.)

These preparations obtained in the pharmaceutical laboratory of the Société des Brevets Lumière at Lyons, are well worth our readers' attention. 1. Cryogénine is described as possessing remarkable antipyretic properties whilst exhibiting little toxic action or any undesirable disturbances. It is a crystalline white, odourless powder, slightly soluble in water and easily soluble in spirit. Chemically it is meta-benzamine-semicarbazide. It is said to be prescribed, on account of its steady action, in pyrexia connected with typhoid fever, tuberculosis, pneumonia, and so forth. Cryogénine is prepared in the form of tablets and wafers, the dose varying from 15 up to 120 centigrammes. 2. Hermophényl is a comparatively new organo-mercury compound; it is, in fact, a combination of oxide of mercury with phenol sodium disulphonate. It possesses the advantage that it does not coagulate a great number of organic substances, a property which commonly leads to irritation of the tissues. It may therefore be employed for intramuscular or hypodermic injection. It is, of course, a powerful germicide and has obvious applications in surgery, while favourable accounts are given of its employment in syphilis, in urinary diseases, and in gynæcological practice. It is prepared in the form of tablets, pills, and dressings, while solutions are contained in ampoules. 3. According to our examination, hémoplase contains the iron constituents of the blood. It is a reddish liquid which shows a characteristic hæmoglobin spectrum, especially

when alkalised with a few drops of ammonia. The liquid on heating coagulates. Hémoplase is administered by intramuscular injection, and its application in anæmia, tuberculosis, and bloodless conditions is regarded favourably. 4. Lumière's jelly is a special preparation which, according to French clinicians, gives remarkable results in checking persistent diarrhœa. It is quite a stiff jelly, sterilised in the autoclave at 120° C.

(1) CHLORETONE GAUZE; (2) FORMIDINE GAUZE; (3) TUBERCULIN OINTMENT; AND (4) PHENOLPHTHALEIN TABLETS.
(PARKE, DAVIS, AND CO., BEAK-STREET, REGENT-STREET, LONDON, W.)

1. Chloretone possesses not only antiseptic properties but analgesic properties also, and therefore its application to wounds as a dusting powder on gauze is of service. It is regarded favourably also in gynæcological and dermatological practice. 2. Formidine is a powerful antiseptic, being a condensation product of iodine, formic aldehyde, and salicylic acid. On its gradually dissolving, the germicidal activity of these constituents is developed. Formidine is said to be free from irritating or toxic effects, and the gauze forms a very satisfactory substitute for the old iodoform fabric. 3. The tuberculin ointment contains Koch's old tuberculin incorporated with wool fat in proportions laid down by Dr. Ernst Moro, who recommends its use for the cutaneous diagnosis of tuberculosis, considering the reaction to be fully as reliable as the von Pirquet method and less risky than the diagnosis obtained by subcutaneous injections or by the conjunctival method of Calmette. This Moro test is supplied in collapsible tubes. 4. The palatable phenolphthalein tablets have been designed for the use of children, and therefore the medicament has been pleasantly flavoured, and the mixture is slightly sweet as compared with a tasteless substance. Phenolphthalein appears to be a very satisfactory laxative in a considerable number of cases.

ROCLA NATURAL TONIC WATER.
THE NATURAL ROCLA TONIC WATER. LONDON OFFICE: 69, EDGWARE-ROAD, MARBLE ARCH, LONDON, W.)

The composition of this water is interesting but not unique. In volcanic districts it is common enough to meet with water impregnated with iron with traces of other metals, including arsenic, derived from beds of iron pyrites. When the water is fresh the iron exists in the form of the soluble protosulphate. After a time it oxidises and the persulphate is then present. That at all events was the condition of the iron in a sample of Rocla water submitted to us. Traces of copper and arsenic were also detected. No doubt in some cases the water supplies the place of a hæmatinic—in, for example, anæmia and general debility, but as a rule a mineral salt of iron, and especially the persulphate, is badly borne, leading to digestive disturbance. The water has a strong astringent action. According to our analysis it contains in solution iron equivalent to 4·48 grammes of ferric oxide per litre. It was chiefly combined in the form of persulphate, the amount of SO_3 found being 8·20 grammes per litre. The presence of arsenic in small quantities is calculated to assist the therapeutic action of the iron.

THE ROYAL SANITARY INSTITUTE.—A meeting will be held on Nov. 20th, at 10.30 A.M., in the Council Chamber, Exchange Buildings, Nottingham, when a discussion will take place on the Improvement of City Slums by Housing Reform and Otherwise. The discussion will be opened by Alderman T. J. Dabell, J.P., M.R.C.S., chairman of the health committee, Nottingham. The chair will be taken at 10.30 A.M. by Mr. H. D. Searles-Wood, F.R.I.B.A., chairman of the Council of the Institute. A general discussion is invited. Visits will be made to parts of Radford, Sneinton, and Meadows districts, where reforms are in progress or have been carried out.

New Inventions.

A UNIVERSAL ELECTRICAL ILLUMINATOR.

Messrs. Allen and Hanburys, Limited, of 48, Wigmore-street, London, W., have constructed to my design a universal electrical illuminator which I have been using for nearly 12 months in conjunction with instruments for the examination of the sigmoid colon, rectum, urethra, &c. The accompanying illustrations (Figs. 1 and 2) convey a very good impression of the general arrangement of the apparatus. Until the recent introduction of the miniature triple filament lamp most of the light rays produced by the electric lamps commonly fitted to endoscopic tubes were reflected on to the walls of the tubes which resulted in a very feeble illumination. To obviate this disadvantage it was found necessary to produce the light at the distal end of the cannula by means of a metal stem to which was screwed a small lamp. In my apparatus, by means of the new lamp invented by Brüning, most of the light is produced in parallel rays and by means of an improved adjustable condensing lens "A" and a circular, plain, reflecting mirror "B" these rays can be projected in parallel beams, thus affording a most brilliant illumination at the distal end of the cannula "C." The tube-carrier,

FIG. 1.

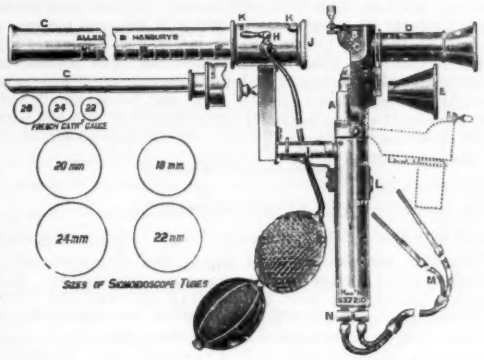

FIG. 2.

which can be adjusted by means of an extension shaft "I," presents two apertures and gives attachment to a three-way stopcock "H," which, in the inflating arrangement adopted, allows the pneumatic pressure to be slowly reduced when necessary, thus obviating any risk of the walls of the bowel telescoping into the metal tube. The proximal aperture takes the glass window "J" which is set at the correct angle to ensure there being no back reflection of the light rays. This window is removeable, being attached by a bayonet joint. The distal aperture receives the sigmoidoscopic or urethroscopic tubes, which are all interchangeable and are also fixed by a bayonet joint. The four shown in Fig. 1 for examination of the sigmoid

colon are 30 centimetres in length and of 18, 20, 22, and 24 millimetres in diameter. Those illustrated for examination of the urethra are Nos. 22, 24, and 26 French catheter gauge. Obturators for the introduction of these tubes are provided. Fig. 2 depicts the method of lateral adjustment, "F G," which enables the lamp to be swung over to the right or left side as desired, for obtaining instantaneously an unobstructed field for cleansing purposes. A telescope, "D," fitted with a sliding eye-piece, giving a magnification of about ten times and a range of from 6 to 18 inches, is adjustable to the apparatus. When magnification is not required a plain funnel-shaped eye-piece "E" is employed. The switch "L" enables the current to be cut off when possible, thus lengthening the life of the lamp and at the same time preventing it from becoming unpleasantly hot. The triple filament lamps require from 10 to 12 volts and they can be illuminated either from a 6-cell accumulator or from a wall rheostat when the main electric current is available. Messrs. Allen and Hanburys supply a small unspillable accumulator known as the "Oslite" which is very suitable for use with this apparatus. The connecting cables "M" are well insulated and are covered with indiarubber tubing. Socket terminals are also provided which fit securely on to the pins on the main handle "N."

In this apparatus the following advantages will be at once apparent: 1. There is no obstruction in the lumen of the cannula to interfere with the operator's view. 2. The small lamp used at the distal end of other forms of endoscopic tubes is very liable to fuse or become covered with fæces, mucus, &c., and thus rendered useless. In this instrument these defects are overcome. 3. When it becomes necessary to cleanse the bowel or urethra the lateral adjustment readily enables this to be done, whereas when the light is obtained at the terminal extremity of the tube the lamp has to be constantly withdrawn before this can be accomplished. 4. Finally, the illumination is better than that obtained with any other instrument.

E. CANNY RYALL.

Harley-street, W.

ASYLUM REPORTS.

Lanark District Asylum (Report for the year 1908–1909).—The average daily number resident at this asylum during the year ending May 31st was 933. The admissions numbered 269, and show an increase of 21 on those of the previous year, and 39 more than the average admission rate for the last 13 years. The discharges numbered 252. The recovery-rate was 40·3 per cent. on the certified admissions. 30 patients recovered within 3 months of admission, 27 within 6 months, 23 within 12 months, 17 after a residence of from 1 to 4 years, and 3 after a residence of from 7 to 11 years. The death-rate was 7·7 per cent. on the average number resident. The medical superintendent, Dr. Neil T. Kerr, points out that of a total of 85 cases of general paralysis admitted to the asylum since its opening 75 patients were males and 10 females, giving a percentage of 88·23 and 11·76 respectively. This is somewhat in excess of the 5 to 1 ratio given by most writers, and serves to bring out even more clearly the greater liability of males to the disease.

Glasgow Mental Hospital, Gartloch (Report for the Year 1908–1909).—During the year ending May 15th, 1909, there were 1033 cases under care. There were admitted 282 patients. There were 106 persons discharged as recovered, this giving a recovery-rate of 37·58 per cent. There were 96 deaths, giving a percentage on the average number resident of 12·6. The male death-rate was 16·3 and is accounted for by the character of the admissions, serious bodily illness being a prominent feature in the majority of the cases admitted. Of the 66 male deaths 27 occurred within six months of admission, and of 282 admissions only 44 are noted as in good bodily health and condition on admission. Dr. W. A. Parker, the medical superintendent, reports that this year, as usual, alcohol, alone or in combination, was the most prolific determining cause of insanity in the patients admitted. Besides this direct influence it would appear that alcoholism is as notable a feature as ever among the parents of those patients whose breakdown or arrest of mental growth has taken place during the period of most rapid development. So far as treatment of patients is concerned it would appear that open-air bed treatment continues to give satisfaction and is used in all new and recurrent cases. It secures its best results "in combination with very carefully graded and, as far as possible, purin-free diets." Dr. Parker is of opinion, after an experience of ten years, that the method secures more restfulness, better sleep, and better assimilation of food than when patients are treated either without bed treatment or in bed indoors. In prolonged cases of bed treatment it is combined with massage or hot and cold sprays, prolonged baths, or the static brush applications, to secure peripheral stimulation and improve the circulation and assimilation. The most notable new method of treatment introduced at this asylum during the period in question is musical drill. It promises to be useful in rousing and raising the younger lethargic dements to more useful and active life.

The Queensland Asylums.—The report of the inspector of hospitals for the insane in Queensland shows that on Dec. 31st, 1908, there were 2189 persons suffering from insanity under State control, 1358 being males and 831 being females. The population of the State at the end of 1908 was estimated at 558,237, comprising 308,837 males and 254,400 females. Calculated on these figures, the proportion of insane under care per 1000 of the population was 3·92—4·46 in the case of males and 3·22 in the case of females, this being a slightly higher proportion than in 1907. The distribution of patients in the various hospitals was 1250 at Goodna, 201 at Ipswich, and 733 at Toowoomba, with 5 in the reception-houses at Brisbane, Rockhampton, and Townsville. The average daily number resident was 2120, including 1311 males and 809 females. During 1908 there were 360 cases admitted, of whom 329 were admitted for the first time and 31 had been previously under treatment. Among these 360 admissions there were 155 persons born in Australia and 166 born in Great Britain. There were 112 deaths during the year, the death-rate calculated on the average daily number resident in the hospitals being 5·28 per cent., as against 6·38 per cent. in 1907. During the year the insanity department sustained a severe loss in the death of Mr. James Ballantine Hogg, inspector of asylums and medical superintendent of the Hospital for the Insane at Goodna. A peculiarly melancholy event was the fate of Dr. R. R. Whishaw, assistant medical superintendent of the Hospital for the Insane at Toowoomba, who met his death at the hands of a patient.

LONDON COUNTY COUNCIL: COMPENSATION FOR TUBERCULOUS COWS.—A discussion arose at the meeting of the London County Council on Nov. 2nd with regard to the administration of the London County Council (General Powers) Act, 1904, authorising the seizure of cows suffering from tuberculosis of the udder. The public health committee had reported that four cows had recently been seized and slaughtered and sums varying from £11 to £13, being three-fourths of the declared value, had been paid as compensation. Mr. Reynolds, commenting on this, suggested that in recent years an illicit business had grown up for the disposal of tuberculous cattle. The medical officer of health of Portsmouth recently directed attention to "the menace to health through the systematic trade in diseased animals, particularly in tuberculous cows, carried on in markets outside Portsmouth," and stated that owing to active measures taken by the town "the diseased animals are sent to other places, and principally to London." Mr. Reynolds also thought that the London County Council was paying excessive amounts in compensation and that dealers were likely to send their diseased cattle to the metropolis for London ratepayers to pay for. He would like to get at the previous history of such cows. Mr. Easton retorted that, in the absence of general legislation for regulating the milk trade, the history of a particular cow was the very thing that could not be traced. Mr. Gilbert Johnstone, chairman of the public health committee, said that the question of tuberculous cows gravitating to London as a result of the Council's Milk Act had not been overlooked. In passing, he mentioned that the report of the medical officer of health of Portsmouth was written at least a year before their Bill came into force. Since March last only 22 cows had been seized in London. There was no reason to believe that a considerable number of tuberculous cows were being sent to them, but the officials had instructions to report at once if they noted an unusual influx, and in all cases they ascertained how long a cow had been in possession of its present owner.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 13, 1909.

Ourselves.

WE announce to-day on p. 1470 A that THE LANCET at the beginning of the new year will revert to the original price of 6*d*. While saying this much about ourselves we are betrayed into a few words on the development of the paper during its 86 years of life. When THE LANCET was born on Sunday, October 5th, 1823, it consisted of 36 small octavo pages, the contents of which were mainly written, with the coöperation of one clerk, by one London surgeon. The measure we give is very different now to that to which the founder of the journal thought his readers entitled. For the past 15 years an average number of THE LANCET has consisted of 160 pages, and the number of subjects with which we are compelled to deal, no less than the world-wide range of addresses from which our foreign correspondents date their communications, show sufficiently that our collaborators make in themselves quite a large reading public. We lay no stress on the inevitable and progressing increase in the size of THE LANCET, for there is not a single successful newspaper with a long history behind it that cannot tell something the same story—it is in the nature of a newspaper that is alive to go on growing. But we are proud of the consistent nature of our work, and of the public confidence that year by year is put in us, while we attempt to act as a medium of interchange between the members of the medical profession in all their scientific and professional relations, and to uphold in all its phases and without fear the cause of medicine. The alteration in the price of THE LANCET has been made in accordance with the intention of the late Mr. THOMAS WAKLEY, junior, who for so many years was joint-editor with his father, and whose untimely death we are still lamenting in common with his many friends.

Hospital Construction.

AT a period of rapid development in any art or science it is always well, and may often be instructive, to pause for the purpose of comparing the present with the past. Less than half a century has elapsed since the late Sir JAMES SIMPSON, in view of the frightful mortality which then followed surgical operations, advocated the employment, for hospital purposes, of temporary buildings, which could be destroyed by fire as soon as they became sufficiently saturated with noxious emanations to be sources of danger to those who were treated in them. It is perhaps a little humiliating to remember that this counsel was given at a time when the discoveries of LISTER had already dawned upon the world, and that the brilliant obstetrician was unable to foresee the extent to which these discoveries would overcome the evils which he deplored, and would obviate the necessity for the destructive expedients which he advocated. The complete establishment of the principles and practice of aseptic surgery appeared for a time to sanction the belief that hospitals might safely be constructed in such a manner as to bestow upon them a character of permanence, in so far, at least, as that character can be attached to the work of human hands; and it is only now that we are beginning to realise that structures are prone to become obsolete, and that the growing requirements of medical and surgical practice can only be completely satisfied in the presence of a vast number of architectural and other facilities for which no adequate provision has until quite recently anywhere been made, which are conspicuously absent from many buildings to which the name and character of a "hospital" are attached, and which are used for the reception and treatment of patients. No one can venture to dispute that the ideal construction of to-day may before long be found to fall short of the increasing requirements likely to arise from increasing knowledge, and hence to be superseded in its turn; but the present character of that ideal construction is admirably set forth in a recent publication by which these remarks have in the main been suggested. Dr. DONALD J. MACKINTOSH, M.V.O., medical superintendent of the Western Infirmary, Glasgow, has written a treatise on the construction, equipment, and management of a general hospital [1] which seems practically to exhaust the subjects with which it deals, and which is calculated not only to serve as a handbook for architects engaged in hospital design, but also as a guide of considerable practical utility for all who are afterwards engaged in the application of the building and its accessories to their proper and destined uses.. No staff or committee bent upon the erection of a new hospital or upon the improvement of an old one can safely neglect the principles and details which Dr. MACKINTOSH has laid down.

It would be somewhat beyond our present limits to enter into any detailed discussion of the various elements of hospital construction and administration which Dr. MACKINTOSH has lucidly placed before his readers, and which he has illustrated by a profusion of plans and drawings, but they include the gatehouse or admission block of the hospital, the ward unit, whether medical, surgical, or special, the out-patient department, the kitchen and laundry, provision for nervous diseases or for cases of incipient insanity, the general heating arrangements, and the requirements of the nurses' home. The nursing and ward-maids staff for each unit and the accommodation for them, and the resident medical officer for each unit and his proper location with regard to it, are also considered. The operating theatres receive special attention, both as regards construction and equipment, and no detail is too small to be fully noticed in its appropriate place. The photographic illustrations of wards and other interiors are, we presume, taken from the hospital which is under Dr. MACKINTOSH'S immediate charge, and to the governing body of which, in his preface, he pays what is manifestly a well-deserved tribute for "the unfailing encouragement which they have given to every scheme calculated to promote the welfare of the patients,"

[1] Hodge and Co., Edinburgh. 10*s*. 6*d*.

and to whose progressive spirit and zeal for efficiency he acknowledges his indebtedness for the facilities which he has had for acquiring knowledge of the best materials and methods of construction. The book is completed by a series of appendices dealing with various subjects related to its main purpose, such as with the requirements in the way of apparatus, instruments, linen, cutlery, crockery, and so forth, for a ward unit of specified size; an "analysis" of the arrangements for nurses at the Toronto Hospital for Sick Children, which are described as being of especial excellence; and an account of the conditions of medical and surgical appointments and of nursing service in the principal hospitals of the United Kingdom. It is, in fact, little less than an encyclopædia of hospital construction and management, and deals with every related subject except the actual treatment of the patients. The forms for books and registers and the suggestions for inquiries touching the means of applicants for relief, appear to be specially worthy of attention.

But in striving to realise by the mental vision the picture of a perfect and perfectly equipped hospital which Dr. MACKINTOSH has drawn for our instruction, we have more than once been led to question the position to which it would be entitled as an educational instrument. A young medical man entering upon practice is called upon to treat patients in a variety of circumstances, many of them extremely adverse to health; and, if he has been taught his profession under the highly artificial conditions described by Dr. MACKINTOSH, it would scarcely be a matter for surprise if he were unable to adapt himself to more ordinary ones, and if he were to fail in doing the best that was possible in the cottage of the workman, or even in the ordinary residences of middle-class people. It is obvious that the aggregation of patients in a single building involves risks which hardly present themselves in the case of one sick person in a private house; but the conditions of the private house are constantly and in high degrees unfavourable, and they have regularly to be encountered and overcome in practice. We greatly question whether the conditions of the pattern hospital would not have some tendency to disqualify the student who had been trained among them; they might be to him somewhat of the nature of leading strings, or of corks or bladders to one who was learning to swim. Such conditions protect both the learner and the patients in hospital against dangers from which in private practice he would have to find, and often to extemporise, methods of protection for himself. We are here reminded of an old examination story about two students who were respectively asked to deal with a foreign body in the auditory meatus of a cadaver. One of them asked to be supplied with the aural speculum, the methods of illumination, and the pattern of forceps which had been designed by the lecturer upon aural surgery at the school at which he had been taught. The other picked up a bit of wire that was lying at hand, twisted it into a snare, and removed the offending substance in a moment. The better the hospital, and the more complete its appliances at which the student has been educated, the more necessary will it become that he should learn to regard these appliances as artificial conveniences upon the presence of which he must not reckon elsewhere, and the more important it is that he should be taught the principles of asepticism and the possibilities of securing it under externally adverse conditions. We cordially sympathise with the view that the hospitals should afford every possible security and advantage to all who are treated in them; but we also feel that the students should be rendered, as far as possible, independent of institutional facilities, and should be taught to consider how the absence of these facilities should be encountered in the private house and in the conditions of daily life. In the metropolis and in other great cities provision more or less analogous to that afforded by hospitals is furnished by nursing homes and other arrangements; but in rural districts the practitioner is constantly called upon to be his own sanitary officer, and it is of the first importance to his success that he should have been effectively trained in this department of his work.

The Therapeutics of Suggestion.

THE history of the medical profession, amidst much that is encouraging to the men of our own day, discloses also that which is disappointing and calculated to make us pause as we discourse on the progress of science in general and of our art in particular. Of therapeutics this is more especially the case. The practitioner of a generation or two back, as he left the schools, was in the first place a therapist and only very secondarily a pathologist and diagnostician. To-day he is better able to discover the site of a disease and to classify it when found, but he has exchanged the therapeutic confidence of his forbears in medicine for a scepticism which is sometimes paralysing to his efforts. For centuries civilised communities bore, as Sir JOHN FORBES wrote in 1857, "the evils of polypharmacy and of that meddlesome and perturbative practice" which was still so prevalent in his day. Polypharmacy still prevails, but at its side take rank methods which at their introduction were vaunted as opening up more certain roads to health. Hydrotherapy, Mechano-Therapeutics, Hypnotism, Therapy in connexion with the coal-tar products, with many another method of more recent date, have been announced to the world in terms of the warmest commendation, have been as warmly denounced as futile or even dangerous, and with the lapse of time have found a place in our armamentarium which is neither particularly base nor particularly distinguished.

One who had been associated with this Journal for nearly 40 years wrote in 1874: "There is no chapter in the history of medicine more astounding and bewildering than the episode of 1837–38, when for a time animal magnetism or mesmerism engrossed the attention of the profession and the public." In a lecture delivered by Dr. ELLIOTSON in August, 1837, and reported in THE LANCET, we find the words, "There can be no disgrace in taking the trouble to inquire into the effects of mesmerism—not, of course, going into anything supernatural, but only as to its production of such effects as we have observed in other cases, such as sleep, coma, sleep-walking, loss of power and sensation in the limbs, &c.; these we often saw." The experiments which followed seem to have been carried on in an atmosphere which must have made

scientific inquiry difficult. In the public discussion of the subject invective and vituperation worthy of a political platform formed the chief weapons of the respective sides, and ultimately Dr. ELLIOTSON, as a result of a resolution passed by the Council of University College to the effect "that the hospital committee be instructed to take such steps as they shall deem most advisable to prevent the practice of mesmerism or animal magnetism in future within the hospital," resigned his position as physician to the hospital. From this time mesmerism ceased seriously to exercise the minds of members of the profession in this country. It is true that BRAID, working in 1841 and for long after, suggested the term hypnotism and gave to the world admirable accounts of the phenomena of that condition, but it was left to foreign scientists to elaborate his work and to speculate as to the physiological or pathological foundations of the states observed. Dr. G. H. SAVAGE, in the Harveian Oration for this year, selected hypnotism as the central theme of his oration, not, as it would appear, altogether without misgiving as to its dangerous character. The subject has, doubtless, a sinister connotation both for the public at large and for the medical profession in particular. The word carries suggestions of the public platform and of a disgraceful charlatanism which holds its loathsome exhibitions to satisfy a morbid and ignorant curiosity. There is no more justification for the platform performance of hypnotism than for the platform performance of surgical operations. Exhibitions of this character are alike degrading to the hypnotiser, the hypnotised, and the public who witness them; nor is the induction of hypnotism likely to be without mental harm to the unfortunates who for a few shillings submit themselves to useless and unskilled experimentation. Hypnotism as a therapeutic agent of value is no new thing. It has been used for years on the Continent in the judicial school of CHARCOT, his associates and followers. It has passed through a stage of exuberantly enthusiastic support, through a stage of chilling criticism, and at length occupies a fairly defined place. It is not a panacea. It is useful here and useless there. As with most remedies which have not been mere fashions of the passing hour, it may produce sometimes results which are little less than miraculous and at others results which are positively harmful, and it is for the physician, as a man of science, carefully to select the cases which may be benefited, and not, as the charlatan, indiscriminately to dose all his patients with the same medicament.

Closely following upon the Harveian Oration a discussion took place at a meeting of the Harveian Society upon "suggestion" in the treatment of morbid conditions. In the continental school, which has in the past practised hypnotism very extensively, there has grown up an opinion that while suggestion, used either with or without the induction of the hypnotic trance, is of considerable value, there yet remains a simple method which is its superior and which seeks to produce its results with the help of persuasion. No part of the patient's personality is suppressed or placed in abeyance, but an appeal is made to the crowning function of all the functions—namely, to the mind. By careful methods of rational persuasion and with the active coöperation of the patient himself, it is sought to beneficially influence the disordered functions of the body. In the words of Dr. T. CLAYE SHAW, who opened the discussion at the Harveian Society, psycho-therapeutics postulates "the existence of conative processes, such as Will, Faith, Power of Attention, treating these as actual *entities* which can be influenced by being strengthened when weak or called into energy when dormant."[1] It is, we venture to think, one of the most extraordinary paradoxes of our time that though the modern school of psychology is, as Dr. SHAW points out, usually materialistic in its teaching, insisting that will, attention, and conative processes are results not causes, and that there are no such things as primitive faculties in the direction of compelling forces, yet that the latest remedial measures put forward as of extreme validity involve an appeal to that very will and attention whose existence, in the laboratory, is strenuously denied. Monistic materialism may be our creed, but if so, it is a creed which must be disregarded in practice. We publish this week an interesting article by Dr. CHARLES MERCIER, written with characteristic directness from a more metaphysical point of view than we are accustomed to find in a medical psychologist. We commend the perusal of this short article to our readers. Dr. MERCIER points to the impossibility of picturing the neurons of the brain as containing or producing a sound of high C or an emotion of anger. These mental states are not in the brain, they are in the mind. "There is no community of nature between the vibrations of molecules in the neurons of the brain and the thoughts, passions; and volitions that occupy the mind. There is utter separation: between the mental and the material there is a gulf that no imagination can bridge." We recall that Dr. MERCIER, in his presidential address at the annual meeting of the Medico-Psychological Association last year, laid stress upon the importance of preserving the inescapable responsibility of each individual for his acts. It is to that sense of responsibility that whoever practises psycho-therapy, whether consciously or not, makes appeal; and where the physician finds it absent the feebleness of his remedial measures is most apparent.

Annotations.

"Ne quid nimis."

THE LANCET REPORT ON THE STANDARDISATION OF DISINFECTANTS.

WE have pleasure in submitting to our readers this week the first part of a report by a Special Commission of Inquiry, appointed by us, upon the Standardisation of Disinfectants. For some years past we have had abundant evidence before us that the whole question was in an unsatisfactory position. It has received careful and independent attention at the hands of several scientific observers who set themselves the task of determining whether any method could be trusted to represent the actual germ-killing capacity of a given disinfectant. No recognised method appears to have received an absolute consensus of opinion in its favour. Either there was something wrong in regard to the conditions under which the experiments were made or the deductions were

[1] See THE LANCET, Nov. 6th, 1909, p. 1369.

fallacious. Methods both of bacteriological and chemical analysis were freely discredited, and the situation was not helped by the personal feeling imported into scientific disputes. The position was clearly a case for an independent tribunal, and as the question was one of the first importance from a sanitary point of view we decided that it was also a very proper one for THE LANCET to investigate. The first part of our report is published this week and deals with the chemical side of the question. It is suggested that in the light of these results the chemical analysis of disinfectants, when based upon accurate methods, promises to assume an importance which hitherto has not been recognised. This view will be found to be strengthened when the facts brought to light in these analyses are taken into account with the results of bacteriological examination, which forms the second section of the report.

THE BIRTHDAY HONOURS.

THE most distinguished name amongst the few scientific men who have received recognition in the recent distribution of Birthday Honours is that of Sir Henry Enfield Roscoe, F.R.S., Emeritus Professor of Chemistry, Owens College, Victoria University, and late Vice-Chancellor of the University of London, who has been given a seat in His Majesty's Privy Council, a distinction which Huxley always maintained was the proper award for high scientific service to the country. There are only three medical men in the list. Among the new Knights is the name of Mr. James Matthew Moody, L.R.C.P. Edin., M.R.C.S. Eng., who has been the medical superintendent of Cane Hill Asylum for a quarter of a century and was at one time senior assistant medical officer at the Brookwood Asylum, Woking. The award is a proper, if tardy, recognition of the great value of the work done by asylum medical officers. Mr. George Herbert Pollard, M.P., M.D., C.M. Edin., who also receives a knighthood, is a barrister-at-law of the Inner Temple, and has been a Member of the Eccles Division of Lancashire since 1906. In 1897 he was elected to the mayoral chair of the borough of Southport, of which place he is a Justice of the Peace. In the Colonial list is the name of Mr. James Augustine Haran, M.D. Dub., medical officer of health at Mombasa in the East Africa Protectorate, who has been made a Companion of the Most Distinguished Order of St. Michael and St. George. Miss Annie Fletcher has received the decoration of the Royal Red Cross in recognition of devoted service rendered by her to Their Majesties the King and Queen since 1902. Although not a member of the medical profession, the Right Hon. Sir Savile Crossley, Bart., M.V.O., who has been made a Knight Commander of the Royal Victorian Order, has been indefatigable in his work for hospitals, especially in connexion with the King's Fund, the Metropolitan Hospital Sunday Fund, and the Hospital Saturday Fund. We heartily congratulate him upon his well-deserved honour. Mr. Somerville Arthur Gurney, who has been made a Knight Commander of the Victorian Order, is treasurer of the West Norfolk and Lynn Hospital, and was informed of his approaching honour when the King visited Lynn last week to inspect an art loan exhibition, of which Mr. Gurney was chairman, in aid of that hospital. Professor William Augustus Tilden, D.Sc., F.R.S., who has also been knighted, is at present Dean of, and Lecturer of Chemistry in, the Royal College of Science, London, and has held the highest official positions in the profession to which he has devoted his distinguished attainments. Amongst the most popular of the new honours will certainly be those awarded to Sir Ernest H. Shackleton and Dr. Sven Hedin, K.C.I.E., both of whom have shown such physical endurance and indomitable pluck in their respective fields of exploration.

THE DEVELOPMENT OF THE CORSET.

Mr. Arbuthnot Lane, in a paper which appears on another column, draws attention to one disadvantage of civilisation affecting most of us in the present day. He points out that owing to our habit of either standing or sitting on chairs for 16 hours out of the 24 the trunk is kept erect, and therefore there is a tendency for the viscera to drop. Nature, he says, endeavours to overcome this tendency by the formation of peritoneal bands which help to hold up the viscera, but these acquired bands in their turn may set up kinks in the hollow viscera and so bring about disaster. Hence, he is led to advocate the use of a well-fitting corset—i.e., one which will exercise a firm pressure in a backward and upward direction on the abdomen below the umbilicus, and will leave the upper part of the abdomen free. The English corset as at present manufactured he regards as harmful, but the straight-busked French shape is, he says, much less harmful, and "if skilfully made and applied serves to exert a moderate pressure on the lower abdomen." We fear that some very radical change will have to be made in the dress of women before they will consent to wear a corset merely for reasons connected with health. At present the corset is worn for two main reasons—firstly, to afford a firm basis for the support of the skirts; and secondly, to accentuate, or to manufacture, certain characteristics of the female body, commonly termed "the figure." The development of the corset, so far as its evolution can be traced, is an interesting subject. Until recently it was probable that the women of the early civilisations did not wear anything to compress that part of their bodies which lies between the last ribs and the crest of the ilia. But various objects discovered in Crete by Mr. Arthur Evans and his fellow workers show that the people of that island in very early times were, at all events, represented in pictures and on seals as having waists compressed to an abnormal extent. The date of these pictures is placed at 4000–3000 B.C., and reproductions of some of them have been exhibited at Burlington House. One of them is reproduced in Miss Jane Harrison's Prolegomena to the Study of Greek Religion, showing the Mountain Mother and her Mystes, both with waists rather smaller than their necks. Coming to the Greeks of more historical times, we find mention in Aristophanes of a device called strophion, a strip of linen very similar to the modern bust-bodice, and like it used for the purpose of elevating and supporting the breasts. It was also called "mammillare" by the Romans, and in the case of very large mammary development it was made of leather, as appears from an epigram of Martial. In somewhat earlier times we find the fashionable ladies of Rome severely dealt with by Terence (ob. B.C. 159). In his play *Eunuchus*, ii., 3, 21, he says:

> "Haud similis virgo est virginum nostrarum quas matres student
> Demissis humeris esse, vincto pectore, ut graciles sient
> Si qua est habitior paullo, pugilem esse aiunt, deducunt cibum.
> Tametsi bona'st natura, reddunt curatura junceas."

The girl is not like our girls who their mothers are anxious should have narrow sloping shoulders and their chests tightly bound up, that they may be slender. If any one of them is rather more fleshy than usual they say she looks like a prizefighter and cut down her food. Notwithstanding that Nature is good enough, they make them by careful attention as slim as a rush.

Everyone knows how young girls were disciplined in the eighteenth century with backboards and tight stays, but from the above quotation it is evident that the Roman girl was none the more exempt from the tyranny of fashion. It is easy to see how the simple strophion gradually grew larger and stiffer until it culminated in the formidable stays and stomachers of Elizabethan times, and the corset remained much the same down to the early years of the nineteenth century. More sensible views now prevail, and few women compress themselves as their mothers and

grandmothers did. For this relief credit is due to the development of exercise among women and to the use of the bicycle and the motor-car. But, as Mr. Lane points out, the use of a corset constructed to aid instead of to weaken the abdominal muscles is a matter which concerns the medical profession in a marked degree, and it may be that in time the influence of medical men who study the matter will enable fashion to go hand in hand with good sense.

THE FATE OF THE LONG-HEADED BLOND RACE.

THE Royal Anthropological Institute of Great Britain and Ireland was particularly happy in its choice of Professor Gustav Retzius of Stockholm as Huxley lecturer for the current year. He is a son of Anders Retzius, who in 1840 divided mankind according to the shape of their heads into *Gentes Dolichocephalæ* and *Gentes Brachycephalæ*, and thereby laid the foundation on which the great superstructure of modern craniology has been reared. In delivering the Huxley lecture at the new premises of the Institute in Great Russell-street, Professor Retzius dealt with the increase of knowledge regarding the origin and distribution of European races which had attended the application of the methods introduced by his father. A recent survey of recruits for the Swedish Army revealed the fact that 87 per cent. of the Swedes are "long-headed," while 73 per cent. have fair hair. Professor Retzius regards his fellow countrymen as a pure representation of the North European race—a race still found in Scandinavia, North Germany, and Britain, but at one time spread widely over Europe—from earliest neolithic times downwards. They may be regarded as the aborigines of Europe, not, as at one time widely believed, Aryan invaders from Asia. Professor Retzius agrees with those who take a gloomy view as to the future of this ancient race. The qualities which made them great in the past are just those that unfit them for the routine life of an industrial civilisation. The round-headed dark-haired race which has replaced them in central Europe has gained its victory by the possession of superior industrial qualities, a superiority that threatens ultimately to overwhelm the fair-haired North European stock. Professor Retzius is not one of those who believe that an industrial mode of life can alter the shape of the head or colour of the hair; the evidence in support of such a hypothesis is altogether unconvincing. Such questions, of the very greatest importance to industrial nations, can be settled only by a comprehensive physical survey of the people.

AN INTERNATIONAL CONGRESS OF RADIOLOGY AND ELECTRICITY.

WE are informed that arrangements have been made for an International Congress of Radiology and Electricity to take place at Brussels in connexion with the exhibition to be held there in 1910. The Congress, which will meet on Sept. 6th, 7th, and 8th, will be held in three sections. In the first section, general questions of terminology and methods of measurement in radio-activity and subjects connected with ions, electrons, and corpuscles will be dealt with. The second section will be divided into various subsections, dealing respectively with fundamental theories of electricity, the study of radiations (including spectroscopy, chemical effects of radiations, and other allied questions), radio-activity, atomic theory, cosmical phenomena (including atmospheric electricity and atmospheric radio-activity). The third section will be biological and will be devoted to consideration of the effects of radiations on living organisms. The section will deal with purely biological questions as well as with the use of various radiations for medical purposes, both for diagnosis and therapeutics. In order to ensure the success of the Congress committees have been formed in the various countries which will take part in the Congress, and the following scientists have already consented to act as presidents of the committee in each country: Professor Lenard (Germany), Professor Exner (Austria), Professor Oëtvös (Hungary), Professor Castillo (Spain), Professor Barus (United States), Professor Langevin (France), Professor Rutherford (Great Britain), Professor Blaserna (Italy), Professor Birkeland (Norway), Professor Lorentz (Holland), Professor Ferreira da Silva (Portugal), Professor Hurmuzescu (Roumania), Professor Lebedew (Russia), Professor Arrhenius (Sweden), and Professor Guye (Switzerland). Communications regarding the Congress may be addressed to Professor Rutherford or Dr. W. Makower at the University of Manchester, but anyone wishing to become a member of the Congress should communicate his intention directly to the general secretary, Dr. J. Daniel, 1, Rue de la Prévôte, Brussels. Communications relating to the Biological and Medical Section should be addressed to Mr. W. Deane Butcher, Holyrood, Ealing, London, W,

ILLUSTRATIONS IN A NEWSPAPER.

IN another column will be found an account of an interesting case of fracture of both patellæ by direct violence in a patient under the care of Mr. William Sheen. The first illustration to this article is of a more frivolous nature than generally characterises our pictures, but we have admitted it for the very good reason that it gives at a glance the exact method, a rather complicated one, in which the injury was brought about. The original sketch was not, of course, intended for reproduction in the columns of a scientific journal. In providing illustrations for articles for the scientific press it must be remembered that the object of the author should be not, in the first case, to produce an artistic result so much as to give a picture which will show exactly what the writer means to express. It is quite possible to combine extreme technical accuracy with perfect artistic feeling—a good example of this is Turner's drawing of a windmill given in Vol. IV. of "Modern Painters," in contrast with another drawing of the same subject by Stanfield—but for artists of a meaner kind it is generally necessary to subordinate artistic finish to accuracy of detail or even to make the illustration semi-diagrammatic, especially in pictures dealing with anatomical or surgical subjects. We have been led to make these remarks both on account of the clever sketch accompanying Mr. Sheen's paper and also because of a series of articles now running in our contemporary the *Author*, written by Mr. W. B. Plummer, on "The Art of Illustrating." Many of our contributors from time to time have thought us captious with regard to the photographs, drawings, charts, and diagrams with which they have supplied us for the purpose of illustrating their articles, because they have not been familiar with the processes of reproduction. Everybody cannot know everything, and the technicalities of illustration for the press may not concern medical men very closely. But the tendency of medical men being more and more towards illustrating their articles, we recommend to those who are interested the study of Mr. Plummer's instructions. In these the mysteries of the line block, the advantages and disadvantages of the wash drawing, and the necessity of using certain materials are all explained in a very clear manner. We may briefly refer to two little matters which have frequently prevented us from reproducing a drawing or a chart exactly in the form in which it has reached us. A chart may be drawn so that the curve will reduce to a third or even less of the original size without losing clearness, but only if the figures or the letters written upon it have been drawn on a scale to allow of the reduction. As a rule, the

lettering of charts is so small that on reduction the details become illegible. The other matter is a question of colour. Many charts are sent to us drawn on squared paper printed in blue. As the blue does not photograph at all the curve is practically useless, as it appears on a perfectly blank background. Again, in a chart dealing with say, pulse, respiration, and temperature, some contributors send them in drawn in black, red, and blue. A chart drawn thus, if photographed, shows only two black curves corresponding to the red and the black, while the original blue curve does not show at all. Therefore, unless it is intended to have the chart printed in colours, the difference in the curves should be indicated by dotted or broken lines. These few explanations will show the reason why certain drawings cannot be published, and will also, we hope, enable those who wish for the publication of drawings or charts to avoid technical errors which cause both trouble and delay.

THE HEALTH OF THE NAVY IN 1908: AN INVESTIGATION INTO THE CAUSES OF HEAT-STROKE.

FROM the report on the health of the navy in 1908 it is satisfactory to find that there is a continuous improvement, the figures for 1908 showing lower ratios of sickness, invaliding, and mortality than in the preceding five years. It is regrettable, however, to find that venereal affections show no diminution, in contrast with the considerable decrease that has occurred in this class of disease in the army during the last few years. On the other hand, the saving of inefficiency and suffering in the reduction of Malta fever in the Mediterranean command has been most satisfactory; the admission-rate was 0·61 per 1000, whereas in the preceding five years it had been 14·67 per 1000; the disease has been practically extinguished in the navy as well as the army in Malta. The appendix contains an interesting report by Staff-Surgeon Oswald Rees, "Body Temperature and the Causation of Heat Stroke," with detailed observations of physiological conditions as found in the stokehold and engine-room of a cruiser in the Red Sea during September. We regret that this should be the only contribution of original research, and, indeed, the only matter in the whole volume that is not purely statistical. The report itself, as distinct from the tabular material, is hardly anything but a *résumé* of the figures; it cannot be described as their essence, but rather as an *extractum exsiccatissimum*, devoid of any savour or aroma of interest. As we remarked on the occasion of the similar report for 1907, it seems to us a pity that so much labour should be expended in the compiling of returns and official reports without any practical lesson being deduced from them by the experts best qualified to judge of their significance. In Staff-Surgeon Rees's report reference is first made to Dr. J. S. Haldane's researches on "critical" temperatures, and an account is given of the author's experiences during the passage of H.M.S. *Fox* through the Red Sea on her way to the East Indies station in the month of September. Staff-Surgeon Rees and Surgeon G. A. S. Hamilton for a certain period spent the first dog-watch of each day (i.e., 4 P.M. to 6 P.M.) either in the stokehold or engine-room. It was found to be impossible to carry out observations on the stokers, therefore the medical officers experimented on themselves. They imitated the actual work of the stokers—which is very severe while it lasts, but intermittent, and carried on in a brisk current of air (150 to 600 linear feet per minute), but exposed to intense heat and glare—by climbing up and down a ladder in front of the furnaces. Under the conditions of the experiment it appeared that 83° to 84° F. was the "critical" wet bulb temperature for both observers, when working in the stokehold of this vessel, steaming at about 10 knots. This critical temperature must vary in each ship under varying local conditions, such as rate of steaming, position and kind of furnace, use of forced draught, &c.; and probably also varies with the individual, the seasoned stoker's critical temperature being higher than that of the unseasoned man. No stoker needed treatment for heat-stroke until the wet-bulb temperature averaged 87° F. On Sept. 8th this was found to be the temperature of the stokeholds in use, whilst in the engine-room it varied from 87° to 96°, so that in both departments the conditions were critical and cases of heat-stroke were to be expected. Even on deck the wet bulb reached 85° from 4 P.M. to midnight, the dry bulb registering 91°. 13 cases of heatstroke occurred, with 1 death. Of the three most severe cases, one (a ward-room servant) had fallen asleep with his head exposed to the full blaze of the sun; the second was a cook who had been exposed to the heat of a galley fire; the third was an engine-room artificer, exposed to the engine-room temperature, complicated by a heavy meal of "butter beans" which he had bolted. "Of the other cases the determining cause seems to have been 'fright' pure and simple, as there was a perfect panic among the young stokers." The following practical conclusions are drawn: the necessity for (1) careful observations on wet and dry bulb temperatures in engine-room and stokehold in the tropics; (2) the provision of ventilating fans in engine-room; (3) the taking of external wet and dry bulb observations so that when the former reaches 80° F. all the crew may sleep on the upper deck or in a free-air current; (4) instruction as to causation of heat-stroke so that over-eating, and so on, may be avoided; and (5) energetic treatment of heat-stroke itself by iced bath combined with cold lavation of the bowel. Staff-Surgeon Rees thinks that possibly the amount of meat in the sailor's dietary may be reduced and carbohydrates substituted as soon as the wet-bulb temperature reaches 80° F.

THE REQUIREMENTS AND THE REGULATION OF SIGNALLING BY COLOUR.

AN article with the above heading appears in the *American Journal of Ophthalmology* for October, 1909, from the pen of Dr. Charles Oliver of Philadelphia, who has devoted much attention to the subject. In this the author dwells on the importance of normal perception of colour in situations where accurate colour vision is one of the main requisites, or is the sole determining factor for the safety of lives and for the protection of property. The author points out that rules for the selection of colour material, for the construction of test objects, and for the choice of standards of necessary colour sense should all be placed under the "supervision of a controlling body, from whom all requisite laws must proceed." It is surprising that, considering the magnitude of the interests involved and the importance of safety in travelling to a very large section of the population, some State supervision has not been established, but that it has been left to private enterprise to carry out, in many cases imperfectly or at least inadequately, the testing of the normal sense of colour perception in those who are entrusted with the lives of others, though it is known that defects in this very direction are not infrequent. It is to be remembered that the movements even of the mighty vessels that constitute the strength of the navy are guided at night by the same appreciation of the colour of lights displayed as the most unimportant coasting steamer. In addition, specific lights are employed in army signalling and, Dr. Oliver informs us, in geodetic survey work. For ready recognition of colour perception many plans have been suggested. First, direct comparison of pigment colours popularised by Holmgren's wool

test. Secondly, direct comparison of spectral colours, a plan that is satisfactory, but which requires a somewhat complicated apparatus. Lastly, the study of subjective simultaneous colour and after-colour (complementary colour), which Dr. Oliver regards as practically useless. For ordinary clinical purposes he considers the selection of wools is the best and readiest method of testing the colour sense, though it cannot be regarded as quite reliable. For signalling on railways and at sea another plan should be adopted, and the testing should be done under the actual conditions which exist whilst the candidate's colour sense is officially protecting life and property. The apparatus he himself employs for the testing of sight among railway employees consists in a fixed framework which can be placed anywhere upon a company's property. Wooden frames containing properly and proportionately sized match- and confusion-colours of bunting for daylight work, or illuminated plates and lanterns of similarly tinted transmitted colour for bad weather or for night time are arranged in a row in any order. A series of five test colours form an upper row, and the comparison colours are disposed in a lower tier. One eye is tested at a time. The examinee then successively designates the nearest numerical match to each of the upper test colours by the actual position of the corresponding colour in the lower tier. The examiner, after obtaining the true colour names of the numbers chosen from an assistant, places the selections on suitable blanks for expert decision and permanent registry. Dr. Oliver thinks the colour signals should be standardised, certified as correct, issued under proper authority, and accompanied by plain and simple instructions for their use. Many points have to be attended to in properly testing for colour vision; thus, for example, to give a green signal light a similar degree of brightness, and therefore the same relative distinctness as red, it must be either five times more powerfully illuminated than the red or be given five times more exposed superficial area. It is marvellous, considering the number of trains that ply daily, not that accidents traceable to defective colour vision occasionally happen, but that they are not of daily occurrence. Consider that the distance signal is perhaps, in rounding a curve, only visible for a few seconds, that the information it gives has to be acted on instantaneously, and that the particular signal has to be discriminated, as in the neighbourhood of all large centres where many lines meet, from perhaps 50 others; whilst to the look-out man at sea there is the additional source of doubt and hesitation in the fallacious aspect of even the most saturated colours caught through fog or haze, or intermittently seen on the crest of waves.

THE WET OCTOBER.

THE month of October is on the average the wettest of the 12 over the greater part of these islands, but it is very seldom that its rain-yielding capacity equals that of last month in the south and south-east of England. In nearly all parts of the country the number of days on which rain fell exceeded the normal, and it is extremely rare that even wet October affords so many instances of the gauges yielding an inch or more as the result of one day's rain. Early in the month the heavy downpours were mostly confined to Ireland, Scotland, Wales, and the west and north-west of England; these were, however, subsequently eclipsed by the deluge in the southern and south-eastern counties. It is very noteworthy that these excessive rains occurred over a relatively small patch of country, the districts suffering the most being Hampshire, Sussex, and Kent. There were also some heavy falls in Essex and Suffolk, but the north and north-east of England had very little or no rain during the time and the Midlands very little. At Scarborough and Harrogate the month's rainfall was less than usual. The actual amount of flooding naturally varied much in the different localities. Inundations do not, of course, depend entirely on the amount of water falling during a given time, but they depend to a very considerable extent on the topography of the district, the nature of the soil and subsoil, and the capacity of the drains. They also depend to some extent on the quantity of rain that has fallen during the two or three weeks immediately preceding the culminating fall. A relatively dry soil can easily absorb an inch or two of rain that will cause devastating floods if the soil has been soaked almost daily with more than can flow off or percolate to the lower strata. This was exactly the condition in the south and south-east of England last month. The chief feature with the sunshine was its uniform distribution. London had 7 hours more than the average, but its figure of 76 hours was the least, and no less than 43 hours lower than the total at Torquay. During the first three weeks the temperature was above the average, especially at night, but when the wind shifted to the east and north towards the end of the period the thermometer indicated readings many degrees below the normal figure.

—	Number of days with rain.	Total fall.	Difference from average.	Number of hours of sunshine.	Difference from average.
	†	inches.	inches.	hours.	hours.
Scarborough	17	1·78	−1·40	95	− 1
Great Yarmouth	19	3·48	+0·57	100	*
Margate	23	7·35	+4·60	85	−21
Ramsgate	22	7·80	*	99	*
Broadstairs	21	7·99	*	78	*
Dover	23	6·58	*	102	*
Folkestone...	20	6·10	+2·80	91	*
Dungeness...	21	6·17	+2·75	96	−18
Hastings	23	5·47	+1·75	100	−19
Brighton	25	8·03	+4·50	87	−33
Bournemouth	27	8·03	*	105	*
Southampton	26	9·40	+5·77	90	−22
Torquay	28	6·64	+2·63	119	+ 5
Jersey	26	7·20	+2·12	94	−32
Llandudno...	23	4·77	+0·84	101	+13
Blackpool	22	4·83	+0·81	93	+ 1
Manchester	19	5·78	*	78	*
Nottingham	22	2·56	−0·04	99	+10
Harrogate	23	2·46	−0·86	99	0
Buxton	24	5·41	+0·02	109	*
Bath	26	4·66	+1·61	112	+16
Tunbridge Wells	22	7·10	+3·40	100	− 9
London (Westminster) ...	24	4·07	+1·34	76	+ 7

* No trustworthy average. † A day with at least 0·01 inch.

THE ASSOCIATION OF HEAD MISTRESSES AND MEDICAL CARE IN SECONDARY SCHOOLS.

WE have received from the secretary of the Association of Head Mistresses a copy of some resolutions carried at the annual meeting held in June last. The first resolution expresses disapproval of external examinations for girls under the age of 16 years. We gather that the idea underlying this resolution is that the excessive preparatory study for the examinations of extraneous bodies is likely to do harm to the younger girls, and there are certainly grounds for this contention. In the internal work of schools, both primary and secondary, care can be taken to adjust the time and subjects of study to the individual capacities of the children, but when attempts are made to induce, or even to compel,

children to enter for outside examinations the courses of study must be arranged directly for this purpose, and if any child is entered for such an examination individual peculiarities and needs must be neglected in order to fit the child to the Procrustean bed of examination. The second resolution is even of more importance, for it expresses the opinion that there is need for the medical inspection of all children entering public secondary schools, and that provision should be made for re-inspection from time to time. We endorse cordially this expression of opinion. No small proportion of the children who enter for the higher studies, if we may dignify secondary education by this phrase, are unfitted physically and sometimes even mentally for them. The hours in the secondary schools are necessarily longer than in the primary, the work is harder, and though the children are in a sense picked the strain is greater, and therefore it is essential that care should be taken to see that the back is fit for the burden, even though it appears to be considered unnecessary to fit the burden to the back. With the present general idea that book-learning and examinations are the be-all and end-all of a child's education, a precaution such as that suggested by the resolution is very necessary. The failures which occur in the lives, both mental and physical, of the children in secondary schools are more numerous than might be expected, though the percentage is certainly small, but most of the failures, be they few or many, could have been avoided by careful medical examination made at the commencement of study and repeated from time to time in the course of school life. Adequate precautions are not taken at present. It is insisted, no doubt, that a child should have no obvious ringworm or other infectious condition with which the child might infect others, but little care is taken that the child shall not receive damage from the study that is intended to benefit, and we are glad to see that the conference of head mistresses recognises this point of view.

OSTEITIS DEFORMANS AND ITS PATHOGENY.

IT was in the Transactions of the Royal Medical and Chirurgical Society for 1877 that Sir James Paget first described that "form of chronic inflammation of bones" which bears his name, and since then perhaps a hundred cases or so have been recorded. While the disease therefore is relatively uncommon, and yet easily recognisable, it is somewhat curious that our ignorance of its causation is as great to-day as when the famous English surgeon first drew attention to it. Its occurrence on the Continent certainly appears to be more frequent than in Great Britain, if we are to judge by the literature, but in spite of many carefully examined cases, with pathological reports and, most recent of all, investigation by the X rays, opinion is still much divided on the exact nature of the condition. The old view which regarded it as a late manifestation of congenital syphilis, a form of syphilis hereditaria tarda, is now discredited, a result, in part at least, achieved by radiography, and the same may be said of that other view, according to which Paget's disease is nothing else than chronic rheumatism. Another theory has for a time held sway and still finds adherents—viz., that which attributes the changes to trophic disturbances under the influence of the nervous system. We know that in poliomyelitis, infantile cerebral hemiplegia, tabes, and syringomyelia—to mention but one or two—bony changes, often advanced, may be met with, and in a number of instances of Paget's disease diffuse alterations have been found in the spinal cord. But they have never been sufficiently definite or frequent to bring a causal connexion between them and the bony changes within the realm of probability. During the year two fresh cases have been reported in the pages of the *Nouvelle Iconographie de la Salpêtrière*, one by M. Klippel and M. Pierre Weil, and the other by M. Pascarolo and M. Bertolotti. The first of these concerned a woman, aged 56 years, in whom the disease had made its appearance 11 years previously and had slowly progressed, without pain. In her the characteristic features of marked overgrowth and thickening of the bones, with curving of the long bones (and scoliosis of the vertebral column) were almost entirely confined to the right side of the body. The curious symptom of an increased surface temperature on the affected side, the difference between the two sides being no less than 5° C., was noted in her case; this symptom has been described by one or two previous observers. There was no discolouration of the skin or evidence of local inflammation. The second case was that of a man, aged 53 years, with a history of 15 years' duration. Here the condition was more or less symmetrical and much more widespread, involving as is usual the bones of the cranium, thorax, and pelvis, and, of course, the long bones. The interesting feature of these two new observations is that the patients were suffering from obvious circulatory disturbances; the man was an arterio-sclerotic, and the woman had mitral insufficiency and was slightly arterio-sclerotic. In a large proportion of cases of Paget's disease arterio-sclerosis has been observed, and the view that the condition is somehow a result of vascular changes in the nutrient arteries of the bones has much to recommend it. There must, however, be another element in the causation of the disease which has hitherto escaped the eye of research: arterio-sclerosis is very common; Paget's disease is a rarity.

PUBLICATIONS ISSUED BY THE HUNGARIAN GOVERNMENT FOR THE MEMBERS OF THE RECENT INTERNATIONAL MEDICAL CONGRESS.

THE Hungarian Ministry of Public Worship and Public Instruction has sent us various publications, written in French, that were issued for the special benefit of the members of the Sixteenth International Congress of Medicine which met at Budapest last August. The most remarkable of these is an elaborately illustrated history of the Faculties of Medicine of the Royal Universities of Budapest and of Kolozsvár. During the last few years many alterations and improvements have been effected at these universities. The number of chairs, clinics, and professors has been considerably increased. The history of these faculties is traced back to the fourteenth century, and brief allusion is made to the wars and invasions that interrupted the university teaching. Since the recognition of Hungarian autonomy in 1867 there has been, it is claimed, no further interruption to the forward march. The large volume before us, consisting of close upon 400 pages, with plans and photographic reproductions, shows that a great deal has been accomplished. Reproduced from photographs, very graphic illustrations enable us to see the exterior and interior of the various faculties, the institutes of anatomy, physiology, and bacteriology, the theatres, the operating room, the hospital clinics and offices, and the school laboratories. Emulating the example of his colleague of the Ministry of Public Instruction, the Minister of the Interior published two volumes. The first contains a brief description of all the charitable institutions of Hungary. In the opening passages complaint is made that but little has been contributed by private charity, so that what is done is for the most part done by the State. Nevertheless, at the end of the volume we are told that within the last 15 years the number of beds available for charitable purposes in the hospitals has augmented three-fold. In 1898 a law was

promulgated establishing the right to gratuitous medical aid. This necessitated a great increase in the number of hospitals, and the subventions to the hospitals paid by the Ministry of the Interior, which amounted to 2,179,024 crowns in 1898, rose to 5,551,213 in 1908. But, apart from this and in view of the new law, there was created in 1899 a National Fund for the relief of the sick. This fund was constituted by the levying of a direct tax that might be compared to our poor-rates. This tax yielded the first year 2,389,035 crowns and this has increased yearly, so that in 1908 no less than 7,330,400 crowns were raised by direct taxation for the relief of the sick. Added to the subvention from the Ministry of the Interior, this makes a total outlay of 12,881,614 crowns, or £536,725. The other volume published by the Ministry of the Interior is devoted to public hygiene in Hungary. First an account is given of the authorities dealing with public health questions and how they are centralised, the chief being, of course, the Minister of the Interior, who has to report annually to both Houses of Parliament on the hygienic condition of the kingdom. The Minister is advised not only by the heads of the various departments but also by a superior council of public hygiene, and we are given a description as to how this council is constituted. Then the authorities for the 63 *comitats* or counties and the 25 boroughs of Hungary are described. More than 300 pages are devoted to the various details and functions of sanitary administration. These involve the entire legislation of Hungary on sanitary questions. To deal with this would need, not merely an extensive analysis of these laws and a comparison with those of other countries, but also investigations on the spot, so as to see how far they are effectively applied. Laws by themselves are scarcely worth more than the paper on which they are written; the whole point is the effect they have had on the community. But we have here the basis of investigations on public health questions. Whatever the subject of inquiry, the books issued by the Ministry of the Interior explain what is the law on the subject and what particular class of functionaries have charge of such matters. Thus has the Hungarian Government shown its readiness to afford information, and it is very unfortunate that comparatively little use has been made of the facilities thus given. Many, indeed almost all, of the members of the recent Congress hurried away as soon as the sittings terminated. On the other hand, while the Congress lasted there was not a moment but was fully occupied, and it is doubtful whether the books so freely distributed were read before the members reached their homes. But in any case these books should serve as a sort of invitation to revisit Hungary, and at the present juncture of our own Poor-law affairs an energetic statesman might do worse than go there now.

HONOURS IN CONNEXION WITH THE RECENT INTERNATIONAL CONGRESS OF MEDICINE.

THE last number of the *Official Government Gazette* published at Vienna contained the following announcement: "Acting on the proposal of my Hungarian Minister *a latere* I, appreciating the great merits and work done for the Sixteenth International Medical Congress, confer on Dr. Coloman Müller, Member of the House of Lords, Director of Budapest City Hospitals, President of the Board of Health, the title of a Hungarian Baron, descending on his legal heirs; on Dr. Emil de Grósz, Professor in the University at Budapest and Director of the First Ophthalmological Clinic, the title of Hungarian Councillor to the Court; on Dr. Louis Vermes, chief physician, the title of Royal Councillor; on the Doctors Ignatius Bassa, sanitary inspector; Charles Jassniger, chief physician of the County Workmen's Ambulatory; and Leo Liebermann, jun., first assistant in the Bacteriological Institute of the University, the Chevalier Cross of my Francis-Joseph Order.—FRANCIS JOSEPH."

THE council of the metropolitan counties branch of the British Medical Association has made arrangements to hold a meeting at which the three Direct Representatives of the profession for England and Wales on the General Medical Council, Dr. H. W. Langley Browne, Dr. H. A. Latimer, and Dr. L. S. McManus, will address their constituents who are resident in the metropolis and its neighbourhood. The meeting will be held on Monday, Nov. 22nd, at 4.30 P.M., at the St. James's Vestry Hall, Piccadilly, W. (close to Piccadilly-circus). All members of the profession are invited to attend whether members of the Association or not.

THE death has been announced of Dr. John Waggett at Bournemouth. Dr. Waggett was in his ninety-first year, and has lived in retirement for over 20 years. He spent his professional life in practice in Kensington, and was an M.D. of the University of Edinburgh, as well as a Fellow of the Royal College of Surgeons of England. In 1855 he wrote a report on the cholera epidemic for the British Government.

A TELEGRAM from the Governor of Mauritius to the Secretary of State for the Colonies stated that 20 cases of plague with 15 deaths were reported during the week ending Nov. 4th.

Mr. C. O'Neill, M.D., M.Ch., M.A.O.R.U.I., has just been elected a Member of Parliament for the South Division of Armagh, Ireland.

WE deeply regret to announce the death of Mr. H. H. Clutton, senior surgeon to St. Thomas's Hospital, which occurred on Tuesday last.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Nov. 12th, 1831.

Medical men, I have said, do not enjoy much of the patronage of these countries; and if the government did them bare justice, they would probably not be disposed to complain on this head. Other professions have not acquired much credit from their intercourse with the state and it is not likely that physicians or surgeons would be more fortunate. Of all individuals, indeed, the medical man should eschew politics. The Whig and the Tory, the radical and the ultra, stand in equal need of his assistance. (Excerpt from Introductory Lecture to a Course of Anatomy, by Arthur Jacob, M.D., Professor of Anatomy in the Royal College of Surgeons in Ireland. Delivered in the Hall of the College, Oct. 31st, 1831.)

PRESENTATION TO A MEDICAL MAN.—At St. Stephens-in-Brannel, Cornwall, Mr. Donald Moore Barry, L.F.P.S., L.M. Glasg., L.S.A. Lond., was recently presented with a case of pipes from the members of the local branch of the St. John Ambulance Association as a mark of respect and esteem for his services as honorary lecturer.

THE ILLUMINATING ENGINEERING SOCIETY.—The opening meeting of this society will take place on Nov. 18th at 8 P.M. at the premises of the Royal Society of Arts (18, John-street, Adelphi, London, W.C.), when a brief report of the progress of the society will be presented by the honorary secretary and the inaugural address will be delivered by Professor Silvanus P. Thompson, D.Sc., F.R.S., the first President of the society.

THE STANDARDISATION OF DISINFECTANTS.

WITH SPECIAL REFERENCE TO THE DISINFECTANT PREPARATIONS COMMONLY SOLD TO THE PUBLIC.

A CHEMICAL AND BACTERIOLOGICAL INQUIRY.

IN presenting our readers this week with the first instalment of a report on the standardisation of disinfectants we are fulfilling a promise given to them in THE LANCET of Feb. 6th, 1909, that the whole question of the standardisation of disinfectants should receive from us independent investigation.

The matter appealed strongly to us as one which in the interests of public health called for immediate consideration by scientific inquirers who had no connexion, direct or indirect, with the commercial side of disinfectants. Accordingly, no time was lost in appointing a commission and in drafting wide but simple terms of reference, with the result that actual practical work was commenced in the early spring.

This work has involved a very considerable amount of experimental inquiry in both the chemical and bacteriological laboratory. The results have been collected and are set in order in the following report, which we believe to be a contribution to the subject of the first interest and importance. For although no claim to finality in regard to the methods of standardisation outlined is made, yet the results, we venture to think, add considerably to our knowledge of the forces governing disinfection, while there have been brought to light in the course of the inquiry certain facts which should be of the greatest value in connexion with the practice of disinfection.

The bacteriological part of the inquiry has been entrusted chiefly to G. Sims Woodhead, M.A., M.D., Professor of Pathology in the University of Cambridge, who was assisted by Constant W. Ponder, M.A., M.D., M.R.C.S., L.R.C.P., John Lucas Walker Student at Cambridge. The chemical part of the inquiry fell chiefly to S. A. Vasey, F.I.C., F.C.S., Director of THE LANCET Laboratory, who was assisted in the analytical work by J. E. Purvis, M.A., F.I.C., F.C.S., Lecturer on Chemistry and Physics in Relation to Public Health in the Chemical Laboratories, Cambridge.

THE NEED FOR STANDARDISATION.

The sale of disinfectants is in an unsatisfactory position in this country, and no official attempt has been seriously made to protect the public from employing an article which on examination may prove to be a disinfectant only by name. Yet the word "disinfectant" in the light of the germ theory of disease should now have an unmistakable meaning. The word "disinfectant" should mean simply and shortly a substance capable of destroying disease germs—a germicide, and anything which does not prove to be a destroyer of the activity of disease germs is not entitled to the name of disinfectant. It would be an advantage, we think, if the word "germicide" could be substituted for the word "disinfectant," and there would then be no confusion of terms, amongst which the words "deodorant" and "antiseptic" play their part, neither of which words connotes actual germ-killing power or real disinfecting property.

The fact that so far the State has not attempted to bring disinfectants within a system of control by which their germicidal efficiency could be guaranteed to the public may be attributed, we think, to the numerous difficulties which have attended both the chemical and bacteriological analyses of the complex substances commonly sold as disinfectants. There are not wanting those who deny in the present state of our knowledge the value of either chemistry or bacteriology applied to the question of determining the practical value of a disinfectant. The chemical analysis of a disinfectant has certainly been freely discredited, if not ridiculed, as being a quite impossible criterion of the practical value of a germicide, and although it is natural to maintain that, after all, the determination of the actual germ-killing power of the disinfectant must be the only logical way of estimating its value, yet even bacteriological methods have been subjected to adverse criticism on the ground that laboratory results do not present a true picture of the practical state of affairs. The culture tube of the bacteriologist, it is argued, is a very different thing from the infected bed-pan, and the revelations of the test-tube of the chemist can have little relation to the events in a fever ward. Here, then, must be the starting point of inquiry.

Is it true that neither bacteriology nor chemistry can help us? Is it not possible to devise a method, whether chemical or bacteriological, which will enable us fairly to bring disinfectants under a legalised system of standardisation by which not merely the worthless may be distinguished from the valuable, but the weaker also from the strong? When such a method has been proved to give consistent results and to be relatively simple of execution, then the time has arrived to discuss the kind of legislative machinery which might be set in motion to ensure to the public the supply of disinfectants which disinfect.

It is obvious that if the domestic use of disinfectants is any good at all in preventing the spread of disease, there should be some security offered to the public that what they are buying is in reality a disease-germ destroyer. It is equally obvious that the employment of an inactive preparation may make the momentous difference as to whether disease is checked or spread. It will be admitted that the false sense of security which the use of a worthless disinfectant is calculated to give is a menace to public health and a direct incentive to the spread of disease.

It is the purpose of the present report to review the endeavours that have already been made to place the standardisation of disinfectants on a satisfactory footing. We give an examination of existing methods and point out probable errors which have arisen in the past, and the probable lines along which correct work may in the future be done with results possibly of practical value. It follows that the work embodied in the present inquiry has been taken up where previous investigators have left it.

Having regard to the foregoing considerations, it is obvious that our task of inquiry would resolve itself into two sections: I., the Chemical Analysis of Disinfectants; and II., the Bacteriological Examination of Disinfectants. We deal this week with the first section.

I.—THE CHEMICAL ANALYSIS OF DISINFECTANTS.

DISINFECTION A CHEMICAL REACTION.

Reference has already been made to the fact that in many quarters no value is attached to the chemical analysis of a certain class of disinfectants on the ground that the results obtained throw no light whatever on the germicidal value of the compound. In other words, it seems to have been accepted that no relationship appears to exist between the chemical composition of a mixture and its germ-destroying power. This attitude on the face of it invites criticism, in view of the fact that definite chemical substances are known to exert a definite constant germicidal action. It is known, for example, that certain strength solutions of mercuric chloride or pure carbolic acid have a definite and constant germicidal power, and if that be the case then the germ-killing power is clearly a function of the mercuric chloride or carbolic acid present. It is simple enough to determine by chemical analysis the quantity of mercuric chloride or carbolic acid in the solution, and therefore to indicate in the results the germicidal value of the solution.

As a matter of fact, investigation has shown[1] that a very complete analogy exists between a chemical reaction and the process of disinfection, one reagent being represented by the disinfectant and the second by the protoplasm of the bacterium. Further, Dr. Harriet Chick states that

[1] An Investigation of the Laws of Disinfection, by Harriet Chick, D.Sc.Lond., Journal of Hygiene, vol. viii., No. 1, January, 1908.

"the reaction velocity of disinfection increases with rise of temperature in a manner similar to that of a chemical reaction" and "it follows that there is a very great advantage in the use of warm solutions for practical disinfection." It is common knowledge that temperature favours chemical reaction. Every practitioner knows that when testing urine for sugar, for example, the copper solution is not reduced in the cold and the red suboxide does not appear until the mixture is heated. If, then, disinfection is in the nature of a chemical reaction, it is interesting to inquire why the chemistry of certain disinfectants appears to throw no light upon their germicidal power. One explanation obviously may be that the present methods of chemical analysis are at fault, inasmuch as they fail to bring to light the exact chemical nature of the substance present, and may even fail to estimate its precise quantity. With complex mixtures containing the coal-tar acids we may be left in doubt as to whether analysis has been so perfected as to give a satisfactory qualitative, besides quantitative, account of the active agents present. On the other hand, the peculiar physical condition of some fluids, as, for example, the soapy and resinous emulsions of phenols, may accentuate the killing or chemical power of the disinfectant over the organisms. Dr. Harriet Chick and Dr. C. J. Martin have observed, for example,[2] that the particles of an emulsion prepared by adding water to a soapy preparation of coal-tar acids exhibit active Brownian movement. The bacteria which were considerably larger than the mean diameter of the emulsified particles were seen to be bombarded by the latter. The bacteria were thus frequently brought into intimate contact with particles of tar acids, the disinfectant was appropriated by the organisms, and the death of the latter was inevitable. From these results it is concluded that the appropriation of an emulsion of tar acids by bacteria is in the first instance a process of adsorption and not a chemical combination, and that disinfectants of this class possess superior efficiency, because owing to this adsorption the bacteria rapidly become surrounded by the disinfectant in much greater concentration than exists throughout the liquid. It is important to add, however, that the same property of adsorbing the particles of the emulsion is possessed by most organic particles, in consequence of which the germicidal value of this class of disinfectant is greatly deteriorated by the presence of particulate matter other than the organisms which it is desired to destroy. It has been stated, in fact, that in the presence of organic matter the value of phenol was barely impaired, while emulsified disinfectants were reduced to two-thirds and one-half of their original value. *It is perfectly clear, however, that a particular physical condition of a fluid avails nothing in the cause of disinfection unless there is present a chemical substance which is an active germicide.* The case is analogous to the more effectual bleaching effect of peroxide of hydrogen when exhibited in an oil emulsion instead of in a plain solution.

It will appear already from the foregoing observations that possibly we may demand of a standard disinfectant that (*a*) it should contain a certain proportion of a well-known germicidal substance, and that (*b*) the fluid in dilution with water should exhibit active Brownian movement of the particles distributed in the mixture. These requirements, however, can only apply to a certain class of disinfectants—viz., the soapy, resinous, or emulsified mixtures of phenols or other germicidal agents, preparations, in fact, which form a milky fluid with water. It happens that these are just the kind of disinfectant preparations which are mostly used for disinfectant purposes.

The Evolution of the Coal-tar Disinfectant.

By far the majority of disinfectants sold to the public are mixtures of varying quantities of phenolic bodies with inert tar oils, in many cases with soap and resins or other emulsifying agents such as gelatin or dextrin, &c. It is interesting to inquire into the reasons which have led to the adoption of this class of compound for general disinfectant purposes. Before doing so it is well to point out that they are not necessarily ideal fluids in the work of sanitation because they possess a smell disagreeable to many persons, and, though effective disinfectants, have absolutely no deodorising qualities. There is little doubt that the public attach considerable importance to a compound that has a strong smell, but, of course, this may be a false criterion and give rise to a serious delusion. *The modern practice of disinfection, however, demands chiefly germicidal power.* The forerunner of the present series of emulsified phenol bodies which are now largely used for disinfection was, of course, carbolic acid. The use of carbolic acid as an antiseptic and disinfectant grew rapidly out of the researches of Pasteur and Lister, who drew attention to its marked germicidal power. Time was when crude carbolic acid could be bought very cheaply by the bucketful, and sanitary authorities distributed large quantities of the acid for general disinfecting purposes. So abundantly, in fact, was carbolic acid supplied and so easily could it be obtained that a considerable number of cases of poisoning arose by inadvertence as well as by intention. Carbolic acid figured very largely in the list of suicides, and it was this fact which led ultimately to the acid and its homologues being placed in Part II. of the schedules of poisons. The Privy Council Order of July 27th, 1900, permits the sale without control of liquids containing less than 3 per cent. of carbolic acid or its homologues in disinfectants on the ground that such fluid is not a poison within the meaning of the Act. In a subsequent Order of 1902 it was required that liquid disinfectants containing scheduled poisons should be sent out in bottles rendered distinguishable by touch from ordinary medicine bottles, with a label giving notice that the contents of the bottle are not to be taken internally.

Attention was in the meantime turned to the higher phenols, of which cresol or cresylic acid is the best known example. The advantages which their application to disinfection suggested were that they were less poisonous than phenol and of greater antiseptic power, but they were also less soluble than carbolic acid. Creolin was, perhaps, the first successful attempt to present cresol in a form suitable for disinfection. It was dissolved in soap or alkaline resin, with neutral tar oils, the clear, syrupy fluid producing an emulsion when mixed with water. Later, similar preparations were made, of which it was stated that they were free from phenol and its homologues, and the so-called phenoloids or oils obtained chiefly from the condensations during the process of carbonising coke in close ovens were introduced. These bodies resemble the phenols in certain respects, but they appear to be more of the nature of oxidised hydrocarbons, containing a larger proportion of hydrogen to carbon than the members of the phenol series and a less proportion than the members of the cresol series.

The introduction of these and related oils, generally classed as phenoloids, rendered possible the preparation of a series of products emulsified with soap, resin, or gelatin, or other bodies which were stated to give a maximum germicidal effect and a minimum toxicity. These preparations must still be sold in accordance with the order of the Privy Council just referred to, although, compared with carbolic acid, they are relatively speaking non-poisonous. We shall refer to the point again on account of its importance, but for the present we may simply remark that the comparatively non-poisonous character of these preparations is not connected with the fact that they form emulsions. An emulsion of carbolic acid might possibly be a more rapid poison than its solution. Many of them do not contain carbolic acid or even its homologues.

The question of chemical analysis only becomes complicated and difficult when such complex mixtures of tar oils, acids, soaps, and resins, or other emulsifiers have to be dealt with. It is simple enough to determine the quantity of mercury present in a solution of its salts, the active chlorine value of chloride of lime, and so forth, but the separation of resins, soaps, or neutral hydrocarbons in a fluid which forms an emulsion with water is a difficult and uncertain matter. Further, it is desirable to discover the nature of the germicidal substance present, as, for example, whether it is carbolic acid, cresylic acid, or one of the phenoloid bodies already described. If this could be done with some degree of accuracy there can be no doubt that the results would be sure to throw some light on the probable germicidal power of the preparation.

Chemical Methods of Analysis Applied to Phenolic Emulsions.

So far as we have examined the literature on the subject, there does not appear to be any method of separating the constituents of the modern emulsified disinfectant which can be regarded as at the same time trustworthy and convenient in operation. We believe that this unsatisfactory position is largely responsible for the view that the chemical

[2] Journal of Hygiene, vol. viii., No. 5, 1908.

analysis of coal-tar disinfectants has apparently afforded no interpretation of the question of their actual germicidal value. If, however, we admit that the method of analysis is at fault and that the results cannot be trusted, it is obvious that no data have so far been presented which can be used. Nothing is more certain than that we can estimate the exact amount of chlorine in bleaching powder or of mercury in a solution of corrosive sublimate, and since disinfection has been shown to be analogous to a chemical reaction between reagent and organism the power of these substances to destroy the organism must have some relation to the amount and kind of reagent present.

In regard to this matter an appeal might reasonably and profitably be made to those who have had large experience in the manufacture of disinfectant fluids. It is perfectly plain that makers know exactly what they use in compounding these more or less complex fluids. They must know their exact composition; they are the agents of the synthesis. They must know in particular what germicidal substance is present, whether it is carbolic acid, cresylic acid, phenoloid, or other body. They also know the proportion of this substance, and the amount and kind of emulsifying agent present, together with any oily vehicles in the form of hydrocarbons that may have been used. In a word, the manufacturer knows, or can know, if he chooses, the chemistry of his disinfectant goods. He takes care, also, to have its germicidal strength measured. He is thus in possession of the data required to co-relate, if that is possible, chemical composition with germicidal efficiency. We make no doubt that how to comply with any required bacteriological strength by chemical adjustment is no secret. We therefore maintain that a chemical method of examination, if it can be shown to give reliable results, should be of the utmost importance, if, indeed, it is not found to give ultimately a decided clue to germicidal power.

Several months' constant work in THE LANCET Laboratory convinced us of the unsatisfactory state of the existing methods of analysis. If they were not entirely untrustworthy they were exceedingly inconvenient, tedious, and troublesome. It was determined, therefore, after a careful reference to the literature on the subject, to work out a method for ourselves with the results about to be described.[3]

Methods of analysis which depend upon the distillation of relatively large quantities of disinfectant are only suitable for the technical laboratory. The operations entailed are certainly not convenient in a public health laboratory. Methods which depend directly upon separation by solvents, like light petroleum, ether, acetone, and so on, offer many objections and their accuracy may be doubted. The separation of the solvent is not always a precise occurrence, and when that chances to be the case there is doubt as to the unalloyed state of the substance contained in the solvent. In addition, no attempt is made to differentiate the kind of phenol body present, which is very important. The method which follows is due to the investigations of Mr. Vasey and seems to us free from obvious drawbacks.

THE LANCET ACETONE-BARYTA (L.A.B.) METHOD OF ANALYSIS.

(a) *Fluids containing Soaps and Resins as Emulsifiers.*

The conclusion which we have come to in regard to the analysis of phenol disinfectants compounded of emulsifying agents, containing soaps and resins, is that these latter bodies must be decomposed or rendered insoluble before complete separation of the phenoloid bodies in a pure state can be effected. This may be done by converting the soluble soaps or resins, which consist commonly of potash or soda, into insoluble combinations. For this purpose a strong solution of baryta answers most satisfactorily. Fortunately, also, phenol, cresol, and the phenolic bodies generally are soluble in the resulting alkaline solution. Doubtless lime could be used, but it is considerably less soluble in water than baryta. If a few grammes of the disinfectant, which is made by amalgamating phenol bodies with soaps or resin (the constitution of most disinfectants in the market), be first hydrolysed by stirring with water and then an excess of baryta water added, the actual germicidal body is completely dissolved in the baryta, and there is a rapid separation of the resins or soaps in the form of insoluble baryta compounds. This method is available at once for the complete separation of the phenolic bodies from the soaps, resin, and neutral oils with which they have been compounded.

Filtration is easy, the filtrate containing the phenol bodies whilst the residue consists of the fatty acids, resins, and neutral oils. For the purpose of assaying a disinfectant for its phenolic contents or strength it is only necessary to examine the baryta solution. If it is desired to ascertain the quantities of fatty acids and resins present the employment of acetone enables a separation to be made of those bodies from neutral oils. The residue from the baryta when shaken with acetone yields up its neutral oils, but leaves the soap and resin in the form of a powdery barium compound; filtration completes the separation. The acetone can be examined for the neutral bodies contained in it, while the residue on treatment with hydrochloric acid gives free fatty acids and resin which may be taken up with ether, the ether evaporated, and the residue weighed.

This is the principle of the L.A.B. method which we have found to work well and which has furnished the results given in Table I. In practice the following lines were adopted: 10 grammes of the disinfecting fluid (presumably composed of phenol bodies, soaps or resins, and neutral oils) were shaken well with 100 cubic centimetres of distilled water. After adding 15 grammes of barium hydrate crystals the mixture was placed in a capacious conical flask attached to a reflux condenser, and kept for half an hour at 100° C. by immersion in a vessel of boiling water. The flask was shaken at frequent intervals. The mixture was next allowed to cool, the separated oils, soaps, and resins being well spread out with a glass rod. In most cases it was found that the baryta solution could be decanted almost clean without filtering, but it is better to pour it upon a moistened asbestos plug in a glass funnel, the funnel being attached to the exhaust tap of a water-pump. The residue in the flask was next washed with warm baryta solution and the whole passed through the filter. The filtrate was made to a definite volume (generally about 300 cubic centimetres). 50 cubic centimetres or more of this was treated in a separating funnel with hydrochloric acid, calcium chloride was added, and the liberated phenols were extracted and washed with ether. The ether was then evaporated in a tall flask beaker resting on the top of a metal plate kept at 100° F. A glass tube connected with the water-pump was suspended in the middle of the flask, so that ether vapour was replaced by a current of air and the whole evaporated without any separation or condensation of water. The residue, the phenol bodies, was weighed (col. 1, Table I.). It was then dissolved in caustic soda and an excess of a solution of bromine in soda added, the amount of bromine present in the solution being ascertained in a previous experiment (Koppeschaar process for estimating carbolic acid). The bromine was liberated by adding hydrochloric acid. The bromine absorbed by the phenol was thus found, and care was always taken to secure an excess of bromine in the liquid, the excess being measured by replacing it with iodine (adding a few crystals of potassium iodide) and determining the iodine by means of a deci-normal solution of sodium thio-sulphate. The amount of bromine which had combined with the phenol body was thus determined and calculated into its equivalent of carbolic acid (col. 2, Table I.) It is obvious that if the phenol body present is carbolic acid the percentage figure obtained in the bromine experiment will approximate to the percentage weight of carbolic acid found by drying the ether extractions of the acidified baryta solutions. If there is no agreement between these figures carbolic acid as such is not the germicidal agent present but one or other of its homologues or a phenoloid, the bromine absorption of these bodies being lower. When, in fact, the difference is wide, the conclusion may be justified that carbolic acid is absent. There were not many cases in which the bromine figure for carbolic acid agreed with the actual weight of the phenol body found, according to our examinations of the phenolic disinfectant fluids now extensively advertised to the public; and the conclusion is that real carbolic acid is not, as a rule, the basis of these preparations. But the most remarkable feature of all is that an ultimate consideration of the results of both chemical and bacteriological analyses showed that the wider the difference is between the actual weight of the phenol body found

[3] The following, amongst others, have been consulted: Commercial Organic Analyses by Alfred H. Allen, F.I.C., F.C.S. (J. and A. Churchill, 1900), Vol. ii., Part II., in which are references to analytical methods by the following authors: Chas. Lowe, Kopperschaar, L. de Koningh, Messinger and Nortmann, C. E. Smith, S. B. Schryver, Riegler, Ditz and Clauser, Fresenius and Makin, W. Spatzholtz; Disinfection, by Samuel Rideal, D.Sc. (London: The Sanitary Publishing Co., Limited, 1903); a paper by M. Wynter Blyth, B.A., B.Sc., F.I.C., read before the Chemical Congress, London, 1909, and published in the Medical Officer, June 19th, 1909.

and its carbolic-acid value based on its bromine absorption, the greater is its germicidal efficiency.

The residues after treatment with baryta, which are generally of a treacly description when soap is present but hard and firm when resins are present, contain the neutral hydrocarbon oils, the fatty acids, and resins. To this about 200 cubic centimetres of acetone were added; separation gradually ensues, and the neutral hydrocarbon oils dissolve in the acetone, the soaps and resins being left insoluble. After thoroughly rubbing down the insoluble matters with acetone, the acetone solution was filtered and the fatty acids or resins, as the case may be, washed with acetone and collected. They were next treated with hydrochloric acid and shaken out with ether, the ether evaporated, and the weight of fatty acids or resins was obtained (col. 3, Table I). It was found necessary to examine the acetone solution further in case some fatty acids or resins had passed into solution, but the neutral hydrocarbon oils were never directly determined by weight as oftentimes they proved volatile, and on the whole it was considered more satisfactory to record them as a difference after the other constituents had been accounted for. To the acetone solution was put a 10 per cent. solution of caustic soda and the mixture was thoroughly shaken, when about 20 cubic centimetres of petroleum (white spirit) were added to facilitate the removal of oils, and finally about 500 cubic centimetres of water. After shaking and standing, the aqueous fluid was drawn off and filtered through a wetted filter paper, and the filtrate was made acid with hydrochloric acid, and exhausted with ether. On evaporation, the ether yields the resins or fatty acids which failed to be retained in the barium residue. The amount usually is small. The weight is added to the weight of fatty acids or resins previously found in the barium residue.

The water, if present, was estimated by taking 25 grammes of the disinfectant fluid and adding *exactly* 10 cubic centimetres of a 10 per cent. solution of sulphuric acid and then 25 cubic centimetres of petroleum (white spirit). The mixture was then thoroughly shaken and left to rest. When separation was complete the clear liquid below was drawn off into a narrow and accurately graduated glass cylinder and its volume read, the excess over the 10 cubic centimetres of aqueous sulphuric acid added being regarded as the water present in 25 grammes of the sample. The alkalies were determined by getting an ash and titrating with standard acid.

The following data were thus obtained by the foregoing procedure: (1) phenol bodies directly by weight (Table I., col. 1); (2) carbolic acid value of 1 by bromine absorption (col. 2); (3) fatty acids or resins (col. 3); (4) water (col. 4); (5) and (6) alkalies (cols. 5 and 6); (7) emulsifiers other than soap or resins (col. 7); and (8) neutral hydrocarbon oils, &c., by difference (col. 8). In this category Nos. 1 and 2 are the most important factors, Nos. 3, 4, 5, 6, 7, 8 may be regarded as negative quantities so far as regards germicidal efficiency. It is useful, however, to determine their quantities as being so much bacteriologically inert matter, which may usefully serve as a vehicle.

The foregoing process was tested on a fluid made in THE LANCET Laboratory from materials representing those employed in commercial disinfectants. The left hand column below shows the actual composition (or synthesis) of the fluid, while the right hand column shows the results obtained by the acetone-baryta method (analysis):—

Disinfectant Fluid made up as follows:—	Per cent.		*Composition Found by Above Method.*	Per cent.	
Carbolic acid	30·90		Carbolic acid	31·50	
Resin	10·30	30·88	Fatty acids and resins	29·60	30·65
Soap	20·58		Soda	1·05	
Water	16·47		Water	16·00	
Hydrocarbons	21·75		Hydrocarbons	21·85	

The bromine process gave 31·00 per cent. of carbolic acid.

It should be added also that in the case of one of the commercial preparations examined the kind and amount of the components used in its manufacture were known, and it was found that the results obtained by the L.A.B. method of analysis were for all practical purposes in agreement with facts.

TABLE I.—*Chemical Analysis of Various Disinfectants on the Market.*

Disinfectant	1 Phenols or phenoloids.	2 Carbolic acid equivalent by bromine.	3 Resins; fatty acids.	4 Water.	5 Soda.	6 Potash.	7 Non-soapy or non-resinous emulsifiers.	8 Inert bodies; hydro-carbon oils, &c., by difference.	9 Total neutral excipients.	10 Contents of bottle.	11 Advertised price of bottle.	12 Cost per fluid oz.	13 Cost per 100 units of phenolic body.
COFECTANT	66·27	38·30	24·66	6·40	—	2·67	—	—	33·73	8 fl. oz.	10½*d.*	1·31*d.*	6·6*d.*
MCDOUGALL'S	47·13	22·71	33·54	5·60	—	2·10	—	11·63	52·87	4 fl. oz.	4*d.*	1·00*d.*	7·0*d.*
KEROL	40·56	17·23	19·14	2·40	1·41	—	—	36·76	49·44	7 fl. oz.	12*d.*	1·71*d.*	14·1*d.*
OKOL	48·50	27·44	—	38·50	0·20	—	5·90D	6·90	51·50	10 fl. oz.	12*d.*	1·20*d.*	8·2*d.*
CRUDE CARBOLIC	82·65	61·65	—	2·80	—	—	—	14·55	17·35A	10 fl. oz.	6*d.*	0·60*d.*	2·5*d.*
BACTOX	39·70	19·30	16·70	6·00	—	1·88	—	35·72	60·30	11 fl. oz.	12*d.*	1·09*d.*	9·0*d.*
CYLLIN (Medical)	32·08	12·79	35·11	6·40	—	1·48	—	24·93	67·92	4 fl. oz.	12*d.*	3·00*d.*	31·0*d.*
CALVERT'S No. 5 CARBOLIC ...	93·26	74·09	—	6·00	—	—	—	0·74	6·74A	8 fl. oz.	12*d.*	1·50*d.*	5·3*d.*
CYLLIN (bulk sample)	40·41	24·16	31·23	10·40	2·24	—	—	15·72	59·59	½ gallon.	4*s.*	0·60*d.*	5·0*d.*
IZAL	41·35	25·48	—	47·14	0·10	—	11·41G	Traces.	58·65	4 fl. oz.	6*d.*	1·50*d.*	12·0*d.*
LYSOL	50·96	40·45	28·12	18·40	—	2·52	—	—	49·04	8 fl. oz.	12*d.*	1·50*d.*	10·0*d.*
LAWES'	28·20	18·08	25·73	13·60	2·60	—	—	29·87	71·80	6 fl. oz.	6*d.*	1·00*d.*	12·0*d.*
PEARSON'S	20·70	12·73	17·35	8·00	3·87	—	—	50·08	79·30	8 fl. oz.	12*d.*	1·50*d.*	24·0*d.*
JEYES' (Chemists')	17·80	11·50	20·19	6·40	1·60	—	—	54·01	82·20	10 fl. oz.	12*d.*	1·20*d.*	22·0*d.*
KRESYL	14·16	9·87	15·22	12·00	2·20	—	—	56·42	85·84	20 fl. oz.	10½*d.*	0·52*d.*	12·3*d.*
ZOTAL	10·00	6·70	35·42	21·60	2·49	—	—	30·49	90·00	32 fl. oz.	12*d.*	0·37*d.*	12·5*d.*
JEYES' No. 2 (Grocers')	5·13	1·87	23·21	22·40	1·38	—	—	47·88	94·87	10 fl. oz.	12*d.*	1·20*d.*	77·0*d.*

A = Neutral oils and water only. D = Dextrin. G = Gelatin.

(*b*) *Fluids containing neither Soap nor Resins as Emulsifiers.*

There are, however, disinfectant preparations on the market (as will appear in Table I.) which, though containing phenols, or bodies resembling phenol, as a germicidal basis, are not made up with soap or resin. They are simpler preparations containing the germicidal agent brought into uniform suspension by means of gelatin or gum (see Izal (gelatin) and Okol (dextrin) in Table I.). In such cases the treatment with baryta is not necessary, there being neither soap nor resin to separate. It was found that these substances could best be examined by treating 10 grammes of the fluid with an excess of absolute alcohol or acetone which dissolves the phenoloid, but precipitates the gelatin or dextrin. The insoluble mass was thoroughly exhausted by rubbing down with successive washings of acetone and finally dissolved in water; then the solution was evaporated to dryness and the residue of gelatin or gum so obtained dried and weighed. The acetone or alcohol solution containing the phenoloids (and neutral oils if present) was next

shaken up with a 10 per cent. solution of caustic soda and diluted freely with water. Any neutral oils present were thus set free, the separation being promoted by adding 20 cubic centimetres of petroleum (white spirit). The alkaline solution was then drawn off and filtered and the filtrate made up to a known volume. Part of this was acidified and $CaCl_2$ added, the separated phenoloids were exhausted with ether, the ether was evaporated, and the phenoloid weighed as described previously. The phenoloid after weighing was dissolved in caustic soda and examined in regard to its bromine combination value, as set forth in the analysis of soapy and resinous fluids. The water in these preparations was determined in the same way described in the analysis of disinfectants containing soaps and resins, but a longer time was required for the complete separation of the water from the phenoloids and oils owing to the difficulty of breaking up the emulsions.

The application of the foregoing analytical methods to the chief disinfectant preparations found on the market is given in Table I. The examples there appearing represent the preparations widely advertised to the public, and in every case the samples examined were purchased in the open market. The following were examined :—

Izal.—Newton, Chambers, and Co., Limited, Thorncliffe, near Sheffield. The contents of the bottle measured 4 ounces, and the price fixed by the makers was 6*d*. *Estimated cost per ounce, 1·50d.*

Okol.—The Sanitas Co., Limited, Locksley-street, Limehouse. The contents of the bottle measured 10 ounces, and the price fixed by the makers was 1*s*. *Cost per ounce, 1·20d.*

Bactox.—The Sanitas Co., Limited. The contents of the bottle measured 11 ounces, and the price fixed by the makers was 1*s*. *Estimated cost per ounce, 1·09d.*

Cofectant.—Edward Cook and Co., Limited, Bow, London, E. The contents of the bottle measured 8 ounces, and the price fixed by the makers was 10½*d*. *Cost per ounce, 1·31d.*

McDougall's M.O.H. Fluid.—McDougall Bros., 66-68, Port-street, Manchester. The contents of the bottle measured 4 ounces, and the price fixed by the makers was 4*d*. *Cost per ounce, 1·00d.*

Kerol.—Quibell Bros., Limited, Newark. The contents of the bottle measured 7 ounces, and the price fixed by the makers was 1*s*. *Cost per ounce, 1·71d.*

Lawes Fluid.—Lawes Chemical Co., Limited, Mark-lane, London, E. The contents of the bottle measured 6 ounces, and the price fixed by the makers was 6*d*. *Cost per ounce, 1·00d.*

Pearson's Antiseptic.—Pearson's Antiseptic Co., Limited, 15, Elm-street, London, W.C. The contents of the bottle measured 8 ounces and the price fixed by the makers was 1*s*. *Cost per ounce, 1·50d.*

Zotal.—Burgoyne, Burbidges, and Co., Coleman-street, London, E.C. —The contents of the bottle measured 32 ounces and the price fixed by the makers was 1*s*. *Cost per ounce, 0·37d.*

Krysyl.—Baiss Bros. and Stevenson, 4, Jewry-street, E.C. The contents of the bottle measured 20 fluid ounces and the price fixed by the makers was 10½*d*. *Cost per ounce, 0·52d.*

Lysol.—Charles Zimmerman and Co., 9 and 10, St. Mary-at-Hill, London, E.C. The contents of the bottle measured 8 ounces and the price fixed by the maker was 1*s*. *Cost per ounce, 1·50d.*

Carbolic acid (crude).—Purchased at a chemist's shop in Cambridge, 25, Sidney-street. The contents of the bottle measured 10 fluid ounces and the price charged was 6*d*. *Cost per ounce, 0·60d.*

Carbolic Acid No. 5.—Calvert's, Manchester. The contents of the bottle measured 8 ounces, and the price fixed by the makers was 1*s*. *Cost per ounce, 1·50d.*

Jeyes' fluid disinfectant (black label; purchased at a chemist's shop).—The Jeyes' Sanitary Compounds Co., Limited, 64, Cannon-street, London, E.C. The contents of the bottle measured 10 ounces, and the price fixed by the makers was 1*s*. *Cost per ounce, 1·20d.*

Jeyes' Fluid Disinfectant No. 2 (brown label; purchased at a grocer's shop).—The Jeyes' Sanitary Compounds Co., Limited. The contents of the bottle measured 10 ounces, and the price fixed by the makers was 1*s*. *Cost per ounce, 1·20d.*

Cyllin (crude) supplied in bulk half-gallon drum by the Jeyes' Sanitary Compounds Co., Limited. The price was 4*s*. *Cost per ounce, 0·60d., based, however, on a bulk sample.* A sample of "Jeyes' Special Fluid Cyllin Disinfectant" was obtained which gave chemical results identical with those given by the bulk sample. The bottle contained 9 fluid ounces and the price charged was 1*s*. The cost per ounce of this retail sample, therefore, was 1·33*d*. and the cost of 100 units of phenolic bodies 11*d*.

Cyllin (medical).—The Jeyes' Sanitary Compounds Co., Limited. The contents of the bottle measured 4 ounces, and the price fixed by the makers was 1*s*. *Estimated cost per ounce, 3d.*

THE SIGNIFICANCE OF CHEMICAL RESULTS.

We believe that our results give a very fair statement of the chemical composition of the disinfectants enumerated. Assuming that to be so, is this chemical information of any value? We believe that if the results are carefully considered they will be found to possess a value which has not before been recognised. To begin with, the analyses, of course, show—what previous methods may have done—the proportion of active materials as compared with inactive materials present. Thus the phenolic constituents in the proprietary preparations will be seen to have as wide a range as from 5·13 to 66·27 per cent., while what may be called the inert excipients (col. 9) (soap, resin, neutral oils, alkalies, water) range from 39·73 per cent. to as much as 94·87 per cent. These wide differences clearly affect the question of intrinsic value, for the phenol compounds may be taken to be the chief costly constituent present as compared with mere soap, resin, water, and hydrocarbon oils. If it should happen, to take a simple case, that 6*d*. is charged for 8 ounces of a disinfectant fluid which is found to contain 30 per cent. of phenol bodies, and the same price is charged for the same quantity of another fluid which only contains 10 per cent. of phenol bodies, the purchaser is getting much better value in the former case, assuming that the germicide is presented in both cases in its active form. The fact, however, of combining the phenols in such a way that their highest efficiency is obtained cannot add much to the cost of production of the disinfectant. Cols. 10, 11, and 12 in Table I. are of interest in showing the amount of disinfectant fluid sold for a given sum of money, while col. 13 shows the cost of a hundred units of phenolic bodies, the figures being based on the percentage proportion of those present. It will be seen that there are great variations in the numbers. In the case of crude carbolic acid itself the cost of 100 units is 2½*d*. The cost of 100 units of phenolic bodies in the case of proprietary disinfectants varies from 5*d*. to over 6*s*. There is clearly some anomaly here, unless it can be shown that germicidal action has no relation whatever to the proportion of phenolic bodies present, or unless it can be proved, in spite of any assistance which emulsifying agents may give, that the germicidal action of a fluid containing, say, 5 per cent. of phenol bodies, can be equal to that of a fluid containing five or ten times that amount.

Beyond the mere analytical results there are indications, we believe, that a successfully conducted chemical analysis will throw light upon the actual germicidal value of a preparation. Such ought to be the case, it might be thought, if we accept that disinfection is analagous to a chemical reaction in which the disinfectant and the germ are parties in the equation. We cannot pretend that the exact interpretation is at this stage apparent, but when we come to compare the chemical behaviour of the various phenolic constituents of disinfectants with the bacteriological findings we shall see that under certain conditions the carbolic coefficients calculated upon the results of bacteriological experiment appear to be indicated by certain chemical factors.

We must, however, leave the full discussion of this most interesting and important question until next week, when the report will be completed by the presentation of the bacteriological section of the inquiry.

(To be concluded.)

GLASGOW UNIVERSITY CLUB, LONDON.—The members and friends of the Glasgow University Club, London, dined together on Nov. 5th with Lord Rosebery, as chairman, at the Gaiety Restaurant, Strand, London. Amongst those present were Colonel W. Babtie, R.A.M.C., V.C., C.M.G., Dr. S. H. Belfrage, Dr. M. G. Biggs, Dr. G. H. R. Dabbs, Surgeon-General W. L. Gubbins, Mr. W. Sampson Handley, Dr. G. A. Heron, Dr. L. F. Knuthsen, Sir Shirley F. Murphy, Dr. G. Rankin, Mr. Charles Ryall, Dr. T. Dixon Savill, Mr. G. Templeton, and Dr. Leonard Williams. The toast of the evening, "The University and the Club," was proposed by Lord Rosebery, who referred to the "sprouting up" of new universities all over the country and hoped the result would influence the national destinies. He was doubtful as to the success of grafting on to the universities of Oxford and Cambridge the newer technical schools, for in these developments they could not compete with the newer universities. The University of Glasgow was ancient but was also new from its union with the city of Glasgow. The University of London might attract from all the scattered portions of the Empire the students who would naturally come to the metropolis, but it could never be so closely identified with London as was Glasgow with its University. The University of Glasgow was sending out men all over the Empire, and there was not a place where there could not be found a graduate of Glasgow forming a centre of learning and civilisation and exercising an influence for public good. Other speakers were Professor W. P. Ker, Canon Hensley Henson, and Mr. W. Lorimer.

SOME CONSIDERATIONS OF MEDICAL EDUCATION.

III.[1]

The Requirements of the General Medical Council as to Preliminary Scientific Education.—The Place of Biology in the Curriculum.—Instruction without Examination.—The English Conjoint Board and the Preliminary Scientific Subjects.

THE General Medical Council has been for many years aware that the curriculum of the medical student bade fair to be overloaded, and some ten years ago official notice was taken of the fact by the institution of a Committee on Preliminary Scientific Education, which committee, forming a Joint Committee with the Committee on Examination, reported to the Council in 1904 in very important terms. The committee obtained information from a very large number of licensing bodies and medical and scientific institutions, and as a result of summarising all the knowledge which it acquired it was able to state that no very great difference of opinion existed among any of the bodies concerned. As so frequently happens, the position of the London medical schools was not quite on all fours with that of the other institutions because the London schools, as forming parts of the University of London, intimated that they would reply through the University. The University, however, does not appear to have consulted all the schools, although there is no reason to suppose that had this been done the result of the inquiry would have been less uniform. The eight recommendations of the Joint Committee were—

1. That an examination in chemistry in order to be sufficient should comprise a written paper, a practical examination, and an oral examination.
2. That in respect of chemistry a synopsis of subjects should be issued by each licensing body and that the scope of the examination in chemistry should not fall below that which has been indicated in the report of the visitors and has been generally approved by the licensing bodies.
3. That the examination in practical chemistry should not be limited to simple qualitative analysis but should include easy preparations and simple experiments illustrating important principles.
4. That an examination in physics in order to be sufficient should comprise a written paper and an oral examination, the latter to include practical questions on the use of physical instruments and apparatus.
5. That in respect of physics a synopsis or syllabus of subjects should be issued by each licensing body and should include the elementary mechanics of solids and fluids and the rudiments of heat, light, and electricity.
6. That elementary biology should be retained in the curriculum.
7. That an examination in elementary biology in order to be sufficient should comprise a written paper and an oral examination, the latter to include practical questions on specimens and dissections and on methods of microscopical investigation.
8. That, in respect of elementary biology, a synopsis of subjects should be issued by each licensing body.

Until the sixth recommendation was reached the views of the committee were adopted by the Council with unimportant verbal alterations, and indeed one or two of the recommendations were reaffirmations of resolutions which the Council had already decided by vote at previous debates. But around the sixth recommendation "that elementary biology should be retained in the curriculum" an interesting debate arose. This debate was started by a proposal of an absolutely novel character made by Dr. John Yule Mackay, who proposed for the consideration of the Council an amendment in the following words:—

That the Council is of opinion that while the subject of biology should be retained in the curriculum it will not regard it as necessary that a professional examination in the subject should be demanded, provided the student has attended and duly performed the work of a satisfactory course of instruction in the subject as part of his curriculum at a university or duly recognised school of medicine.

Dr. Mackay, speaking in support of his amendment, placed biology in a different position from that of chemistry or physics. He pointed out in an interesting speech that the amount of work which the student was now compelled to do in biology and in State medicine was heavy and growing heavier, while more attention also had perforce to be paid to the details of many branches of medical studies—he instanced mental diseases and ophthalmology—wherefore he considered that, if it was granted that the curriculum must be lightened, it followed that it was in the preliminary scientific subjects that the change must come. He thought that the principle of having subjects in the syllabus upon which it was possible that the students would not be examined might relieve the overcharged curriculum and the principle suggested in the first instance for biology might be extended in other directions.

The amendment was seconded by Sir John Batty Tuke on the ground that it brought to the notice of the Council a principle "which would tend to reduce the amount of weary grind that went on and resulted in no intellectual activity and the acquisition of the minimum of knowledge," and as far as his remarks were levelled against the abuse of the examination system, he was undoubtedly expressing the opinion of most of the medical profession and very many teachers and examiners. The Council, however, was divided as to the advisability, or even the possibility, of laying down that a subject should be a subject of teaching and not of examination, and it is difficult not to anticipate that if a subject were explicitly excluded from examination by the Council it would very soon be excluded from study—at any rate, the classes in it would come to be attended only on compulsion and in a perfunctory manner. Sir William Thomson made this point in his contribution to the debate. While admitting that year by year the work of the medical student had piled up until it was becoming more and more evident that five years were quite insufficient to enable him to master the details of his training, he held that if biology was only to be an instructional course there would be difficulty in saving it from becoming a farce. The whole of the Council considered that elementary biology in some form or another must be retained in the curriculum, although there were divergences of opinion as to the precise meaning of "elementary biology," a situation which induced some members to urge that the Council should lay down a minimum syllabus of biology, and which equally justified other members of the Council in declining to attempt what they considered an impossible task. Eventually Clauses 6, 7, and 8 were approved of by the Council, while Dr. Mackay's proposal reached this position that the Council instructed the Education Committee to collect information and report on the subject of the feasibility of retaining certain subjects in the curriculum without requiring examination upon them. We shall see later what became of this instruction.

The debate showed clearly that the Council, upon information derived from representative educational and examining bodies, was not prepared to recommend any lightening of the curriculum as far as the preliminary scientific subjects were concerned. There must be written and oral examinations in physics, and every student must be prepared to be examined in biology. While there was a tacit agreement that the curriculum was overloaded, the lightening of the load by throwing biology overboard or by making the instruction in chemistry and physics less important was not found in keeping with modern or progressive ideas of medical education. And at this juncture, at the same meeting of the Council, there occurred a second interesting debate, started in a totally different manner but covering much of the same ground and dealing with many of the same questions, inasmuch as the adoption of the recommendations of the Joint Committee by the Council may be regarded as an acknowledgment by the Council that the admittedly overcrowded condition of the medical curriculum could not be met by any modification of the preliminary scientific courses.

[1] Nos. I. and II. were published in THE LANCET of Oct. 23rd (p. 1232) and 30th (p. 1301), 1909, respectively.

The other obvious alternative was to reconsider the length of the curriculum or the possibility of arranging the subjects within the curriculum in some more flexible manner. The practical action of certain institutions, notably the Conjoint Examination Board of the Royal College of Physicians of London and the Royal College of Surgeons of England, had this possible reform in view. The situation which was revealed at this debate more than four years ago remains unchanged, and may be considered as the middle stage of a dispute which had its origin in 1890 when the medical curriculum was lengthened to five years; and that the points at issue remain unsettled may be realised by a leading article which appeared in THE LANCET,[2] having special reference to the views expressed by the science masters of public schools assembled in conclave to protest against the non-recognition by the General Medical Council of their teaching.

When the five years' course was instituted in 1890 it was not contemplated that the preliminary sciences should be studied elsewhere than at recognised schools of medicine or science. But the Conjoint Examining Board in England from a very early period exercised its discretion under the charters of the Colleges and granted recognition of the science courses given at many schools, and the Board continues to do this despite the regulations of the General Medical Council which are held by the Colleges not to override their privileges. Whether if the wording of the regulations had been different, so that the authority of the General Medical Council had been expressly set out, the Colleges would at the time have resisted it is not easy to guess, but the vagueness of the language employed in the earliest regulations affecting the five years' course undoubtedly conduced to the awkward situation which has arisen. Probably the Council at the time had not even contemplated the possibility of the medical curriculum proper being commenced at any secondary school, or anywhere save at certain universities, medical schools, and scientific institutions. As soon as the flaw was seen an amending resolution was passed containing a new regulation, to come into effect on Jan. 1st, 1900, to the effect that no medical student should be registered until he had commenced his studies at a school of medicine or at a scientific institution recognised by one of the licensing bodies and approved by the Council. The Conjoint Board in England refused to be bound by this regulation, and continued to recognise the instruction given in various schools in the preliminary scientific subjects as sufficient to admit students to the preliminary scientific examinations of the Board. That is to say, that schoolboys were able to count part of their school-time, when they were presumably engaged upon their general education, as part of the statutory five years of the medical curriculum. The Council then asked for a return from all the teaching institutions recognised with the object of finding out whether they were sufficiently equipped for teaching and whether the instruction given was adequate in amount. The return, which has been printed in the Council's minutes, showed that the teaching given was, in the opinion of the Council, of an unsatisfactory nature. Biology was taught in very few schools. As to chemistry and physics, the report says:—

> The course of instruction followed in most of the schools is less than 15 hours a week; in many it is very much less. And it is evident from the statistics presented that in some of the cases it is actually possible for six months of medical study to be constituted by a course of instruction in chemistry and physics, limited, so far as these subjects are concerned, to four or five hours a week, taken out at an ordinary grammar school during school hours, or at a technical institute, it may be in its evening classes.

The Council then decided to inspect the first professional examination of the Conjoint Board in England and that of other bodies which had followed the example of this Board in recognising school work as part of the medical curriculum. Following on the inspection of the examination the two subjoined resolutions were passed by the Council on July 15th, 1903:—

> (1) That the examination in chemistry, physics, and biology of the Examining Board in England is in the opinion of the General Medical Council insufficient. (2) That the courses of study in chemistry, physics, and biology in many of the teaching institutions which have been recognised by the Examining Board in England, but not approved by the Council, are in the opinion of the General Medical Council insufficient.

Similarly the examinations of the other bodies recognising school work were found to be insufficient.

The Council then proceeded to define its requirements with respect to chemistry, physics, and biology, instructing each body to draw up a syllabus showing the course of study demanded and the subjects of the examination in each of the sciences. The English Conjoint Board drew up a new and greatly extended syllabus demanding from its students:—

In chemistry	...	180 hours' instruction and laboratory work.
In physics	...	120 " " " "
In biology	...	120 " " " "

This was the position at the meeting of the Council on May 28th, 1904, when Dr. Norman Moore moved that the communications between the General Medical Council and the Executive Committee from the English Royal Colleges in regard to the curriculum and examination in scientific subjects should be received and entered on the minutes. The course of instruction and details of the first professional examination which it was intended to incorporate in the regulations of the Cojoint Board for the future made it quite clear to the Council that, although the Royal Colleges did not admit in any way that legitimate fault could be found with their curriculum, they were prepared to demand from their students a minimum course in chemistry, physics, and biology which ought to be sufficient for the acquisition of the elements of those sciences, that they were prepared to examine the students by paper and by *viva voce* and to demand a fair standard of marks from the candidates. The Colleges, however, proposed that the courses need not run concurrently, need not be completed within one year, could be attended before the preliminary examination in general education was passed, and could be undertaken at any properly equipped school, while counting for not more than six months of the curriculum. That is to say, the Colleges, relying on (1) the prestige of their charters, (2) the admittedly admirable nature of their test examinations, and (3) the absence of any definite right on the part of the Council to demand registration of every medical student as a proof of the commencement of medical education having taken place at an institution approved by the Council, intended to sanction the education of their students in the preliminary sciences at any place which seemed good to them. Regarded in one way, this was to resist the Council; regarded in another, it could be considered as a definite effort to lighten the burden of the student, for it enabled him to enter a medical school practically ready to attack anatomy and physiology at once.

(To be continued.)

[2] THE LANCET, Jan. 30th, 1909, p. 332.

MEDICAL MAYORS AND MUNICIPAL HONOURS.

Up to the time of going to press we have been notified that the following members of the medical profession have been elected mayors of their respective boroughs: Aldeburgh Mrs E Garrett Anderson, M.D. Paris, L.S.A. (re-elected); Lymington, Mr. Edward F. Chinery, F.R.C.S. Edin., L.R.C.P. Edin., M.R.C.S. Eng.; Newark, Mr. F. H. Appleby, M.R.C.S. Eng., L.S.A.; Oswestry, Mr. R. de la Poer Beresford, M.D. Glasg., L.R.C.P., L.R.C.S. Edin., L.R.C.P. Lond.; St. Albans, Mr. E. H. Lipscomb, M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond.; Wolverhampton, Mr. J. Grout, L.R.C.P. & S. Edin., L.F.P.S. Glasg.

THE MOTOR EXHIBITION AT OLYMPIA.

By C. T. W. HIRSCH, M.R.C.S. Eng., L.R.C.P. Lond.

I.

THE only International Exhibition of Motors to be held this year opens to-day (Friday) at Olympia, and as London is distinctly becoming the motor mart of the world the importance of the exhibition can scarcely be exaggerated. Since last year the large annexe at Olympia has been thrown into the main hall, and the building now forms one vast space in which some 600 motor-cars are displayed. Some people, the minority probably, say, "What is the use of visiting the show? It is true we think of buying a car, but when we have found out the names of some of the best cars we will go to the manufactories and see them there." This, of course, is possible, though some of the factories are a good way off; but it seems to me that a dozen long journeys to distant and near makers can never give the general ideas to be obtained by the three miles' walk which a visit to each stall at Olympia entails. Here are all makes of cars, engines, and accessories, and the would-be owner of a car can easily see what sort of car he can obtain for the cheque he has decided to write. The impression that most visitors will get at Olympia is that nearly all manufacturers are now catering for the man of moderate means, which I think includes the majority of the medical profession. The chief thing we all require is some form of carriage which, when the occasion demands, can be depended upon to start at once and to transport the owner from patient to patient, and to do this quickly and also economically, without vibration or noise.

A preliminary inspection of Olympia early this week confirmed my view that this, the eighth show held by the Society of Motor Manufacturers and Traders with the coöperation of the Royal Automobile Club, is much like its predecessors, only larger, with more temptations to the motorist to dispose of his present car and to indulge in one of the many and inviting new ones. Of course, the question on everyone's lips is, "Which is the best car," and naturally medical men ask, "Which is the best one for us?" The tastes of medical men vary from the lordly six-cylinder beautifully upholstered limousine to the very modest two-seated 6 h.p. single cylinder, with a Cape cart hood and a front glass or mica shield. A practitioner's income has, of course, much to do with his choice of a car, and the character of work expected of the car must also be taken into account.

The space at my disposal does not allow of an exhaustive treatment of the exhibition, but I have selected for notice this week some cars and other exhibits which appeared likely to interest a medical man, and next week other cars as well as the general features of the exhibition will be considered.

The Adams Manufacturing Co., Limited, show on Stand 145 their 10 h.p. single-cylinder car, with their planetary ever-meshing gears and interlocked pedal control. Their new model has a four-cylinder engine, and can be supplied either with a standard gate-change four-speed forward and reverse gearbox, or with the ever-meshing gears as on the single cylinder.

Messrs. Argylls, Limited, have an interesting range of cars on Stand 65. Some particulars of the productions of this firm were given in THE LANCET of May 30th, 1908, and August 21st, 1909. The cars which they are exhibiting are in every way up to date and worthy of the name of this old-established firm.

Messrs. Sir W. G. Armstrong, Whitworth, and Co., Limited, show on Stand 42 two 12–14 h.p. cars which are well worthy the attention of those seeking a small four-cylinder. The cylinders are of 80 mm. bore by 120 mm. stroke, cast *en bloc* with ample water jackets, the valves being all on one side and of large dimension. A good feature is that the crank shaft is supported in the upper half of the crank case, so that the lower half, which is detachable, acts only as a cover. The inlet and exhaust pipes are arranged on the opposite sides of the cylinders, and a special point which is claimed is that the inlet gases pass through the inlet valves through passages cast in the cylinders, and are thus warmed before reaching the combustion chamber. Unlike most monobloc engines, the exhaust pipe is cast separately and has four outlets, one for each cylinder. Lubrication is by a gear-driven pump in the crank case, and through ducts in the crank shaft to the main bearings. Cooling is on the thermo-syphon principle, and vanes in the fly-wheel act as a fan, and suck air through the honeycomb radiator. The clutch is of the multiple disc pattern, self-contained in an oil-tight casing, and a universal joint is interposed between the engine and gearbox. Four speeds forward and a reverse are provided, and, as is now the custom, the casing of the back axle takes the weight of the car, and the inner or live axles merely take the drive. The throttle is worked by a lever on the right hand of the steering wheel or by a foot accelerator pedal. The car can be had with a wheel base of 9 feet 2 inches or with one a foot smaller.

On Stand 69 the Austin Motor Company, Limited, show two cars which are bound to interest medical men. The 7 h.p. two-seater is an entirely new single-cylinder model. The bore is 4½ inches and the stroke 5 inches, and both valves are on one side. Lubrication is by a pump in the crank case. A commendable feature is that two separate ignitions are fitted, and cooling is by thermo-syphon. Change speed is of the gate type, and the top speed is direct to the live axle. The propeller shaft has a universal joint at each end. As this car is built by one who was manager of the firm that built the successful little 6 h.p. Wolseley, it certainly is worthy of inspection by all in search of a small car. The 15-h.p., which is shown as a landaulette, should be popular with town practitioners. The engine is under the driver's seat, thus permitting a roomy carriage with a wheel base of only 7 feet 9 inches, so it is easy to manœuvre in traffic. A 40 h.p. caravan is also shown, with a saloon to dine six people and a kitchen attached, in which a full-course meal for that number can be prepared. For patients desiring open-air treatment I cannot imagine a better vehicle, for every accommodation is provided for sleeping and lavatory purposes.

Belsize Motors, Limited, have on Stand 83 a variety of their 14–16 h.p. cars, of which the special features are four-cylinder engine, pump lubrication, thermo-syphon cooling, Bosch magneto ignition, metal-to-metal clutch, three speeds forward and reverse, with a gate change. With a standard touring body the price is £290, and with a landaulette £390.

Messrs. E. H. Bentall specialise in one chassis, of which they have four specimens on Stand 26. The special points are single unit gearbox, propeller shaft and back axle, a fibre-to-metal clutch running in oil, and all the four brakes act on the road wheels direct. The valve mechanism is very simple, and is situated on top of the engine.

Messrs. Brown Brothers, Limited, on Stand 133, show their 20 h.p. four-cylinder landaulette, which has separately cast cylinders, magneto and accumulator ignition, pump lubrication, internal coned clutch, four speeds, with the gate system of change levers, and certainly is wonderful value for the price asked, £395. The "Albruna" 10–12 h.p. four-cylinder has its cylinders cast all in one piece, an automatic carburettor, magneto ignition, and foot accelerator, with auxiliary hand adjustment on the dashboard, and is priced at £240 as a two-seater and at £270 with a side-entrance body.

On Stand 39 the Clement Motor Company have three specimens of their 14–18 h.p. car, the specification of which provides a frame of pressed steel, three-quarter elliptic outhung rear springs, four-cylinder engine, 85 mm. by 120 mm., Bosch high-tension magneto ignition, lubrication by gear-driven pump, White and Poppe carburettor, leather-faced cone clutch, tension spring easily accessible for adjustment, gate sytem of gear-changing, and transmission through cardan joint with metal-encased universal joints.

The Connaught Motor and Carriage Company, Limited, show a fine 14–20 h.p. Renault, with a cabriolet body, also a Siddeley with a double Victoria body, and another Siddeley as well as a 15 h.p. Talbot, with their three-quarter landaulette. These are on Stand 107. This firm is sole concessionaire for Messrs. Léon Bollée, who have brought out a new light four-cylinder 14 h.p., with engines cast in pairs, thermo syphon cooling, mechanical sump lubrication, and a gate-change speed. Three of these are on Stand 32, and one with a Connaught torpedo body struck me as exceptionally comfortable. They also stage on Stand No. 31 specimens of the Neue Automobil Gesellschaft, the 14 h.p. four-cylinder being well worthy of inspection, as it has been improved since it was brought out last year. The wheel

base is now longer, the clutch is improved, the front brake is of larger diameter, and the speeds are now worked by the popular gate-change.

The Daimler Co., on Stand 36, introduce for the first time their 15 h.p. valveless engine car, their larger model having given not a little satisfaction since its appearance at the last exhibition. The distinction lies in the fact that the engine has no valves in the ordinary acceptation of the term—that is, no mushroom valves operated by a cam shaft. Instead, the piston is enveloped by two open-ended shells, surrounded by the cylinder casting, these shells being worked up and down by a kind of miniature crank shaft. Running parallel to the crank shaft and revolving off it by a silent chain in the shells are ports, which are covered or uncovered by the sliding of the shells over one another and in the cylinder, and thus the cylinders are filled and scavenged, compression being maintained by a "junk ring"—a wide ring at the bottom of the head from inside the piston. These cars are bound to attract attention, and if visitors are unable to get near the Daimler exhibit a section of the Knight's patent engine can be seen on the stand (44) of the Minerva Motor Company, who turn out a 16 h.p. car fitted with a silent Knight engine, and show a chassis, a side-entrance car, and a landaulette.

Messrs. Darracq and Co. show on Stand 62 various types of bodies of their new 14–16 h.p. four-cylinder car, which was described in THE LANCET of Oct. 30th, p. 1303. With a standard double phaeton body the price is £225, and a doctor's coupé, in which the owner-driver can manipulate completely protected from the weather, is turned out at 275 guineas.

Five different models form the exhibit on Stand 60 of Messrs. De Dion Bouton. This firm were one of the first to popularise motor-cars among the profession, and their productions are probably as great favourites to-day as when they were introduced. The 8 h.p. one-cylinder is the up-to-date representation of their original 6 h.p., but, of course, it differs. The bore is 100 mm. and the stroke 120 mm., the inlet valve is mechanically operated, ignition is by high-tension magneto, the drive is direct on the top speed, it has a live back axle, and ball-bearings to all the wheels. The one shown has a two-seated phaeton body of convex shape, with high side doors, hood, and wind shield, and, like its early predecessor, it is sure to attract many purchasers. The 14 h.p. four-cylinder is similar to the 12–14 h.p. of last season, but the stroke has been increased by 20 mm. It is fitted with a new combination landaulette, comprising a double Victoria touring body with a sort of Cape-cart hood which, with glass windows, forms a perfect landaulette, and should interest all who desire an open car which the owner can drive, combined with a closed carriage. A 14 h.p. chassis, with sections cut out to show the construction and working of all the inner parts, should be seen. It is quite an education in motor anatomy. The most important departures from previous practice with this firm is the fitting of live axles to the two lightest models and the suspension of the differential on a tubular stay isolated from the frame by eight rubber buffers. On their highest-power car an eight-cylinder V type engine is fitted. Except on the 8 h.p. lubrication is forced by a pump. The clutch is of the non-lubricated three parallel disc plate type and sliding gears are now used. These are, of course, now the fashion, but beginners may regret the "fool-proof" expanding clutch-ever-in-mesh variety.

Messrs. S. F. Edge stage on their stand four noiseless Napier cars, which are sold with a three years' guarantee. Full details of these cars were given in THE LANCET of Oct. 9th, p. 1092. They are undoubtedly worthy of serious consideration by those in search of a reliable, well-built carriage.

Germain cars are shown on Stand 28—two 18 h.p. and one 20 h.p. The important features of the 1910 models are positive pump lubrication, gate-change speed, metal-to-metal clutch, steel cylinders, and brass water jackets. Most of these exhibits have torpedo bodies, which have been introduced by Captain Theo Masui, the agent-general for the Germain cars.

Messrs. H. M. Hobson, Limited, have on Stand No. 25 three Delahaye cars and one Hobson car. Of the former, the 12–16 h.p. and the 9–11 h.p. are both well suited for medical men. On their accessory stand, No. 212, they show the new type Hobson-Pognon magneto plug. The Claudel-Hobson carburettor, which was described in THE LANCET of July 4th, 1908, p. 44, is on view, both as a complete model and in sections. A novelty here is the Hobson tyre clamp. This clamp entirely obviates the use of security bolts, and the necessity of nipping the inner tube when it is being fitted; and, of course, saves considerable time and labour when tyre troubles occur. In fact, it makes the removal and fitting of the tube an operation which can be performed within a few minutes. This clamp can be employed with any existing cover, and no special inner tube is necessary. Another useful little article is the Bougie switch for locating engine morbidities without the necessity of removing the plug, or using a screw driver or other unsatisfactory instrument for testing, thus obviating the chance of damaging either the magneto, coil, or accumulator.

Messrs. Charles Jarrott and Letts, Limited, have on Stand 45 two 12–14 h.p. Crossley cars, the productions of Crossley Bros., Limited, of Manchester. The special features of these are monobloc engine, all valves and tappets enclosed, and high-tension dual ignition. The engine flywheel and gearbox form one self-contained unit, so arranged and designed, however, that the engine or the flywheel and gearbox portion can be removed from the chassis independently. The clutch is of the metal-to-metal expanding shoe-type running without lubrication. The gearbox gives four speeds forward and reverse through a pivoted gate, and the propeller shaft to the back axle is encased in a steel tube, terminating at the gearbox in a spherical ball forming an oil bath for the universal joint. This tube constitutes both a radius and a torque rod, so the back springs are shackled at both ends. Front wheel brakes operated by a foot pedal, and back wheel brakes controlled by a hand lever, are fitted, thus avoiding braking strains on the transmission. The exhibit also comprises three of the 12 h.p. voiturettes manufactured by Messrs. Sizaire and Naudin. This is the car described in THE LANCET of March 27th of this year, but the engine has been increased in size and power, the bore and stroke now being 120 by 140 mm. instead of 120 by 130 mm. as in the 1909 models. Some of the working parts are now more accessible, and there is an improved method of adjusting the brakes.

Messrs. Morgan and Co., who are the sole agents for the Adler cars, have on Stand 58 some six specimens of these well-known German automobiles. The 12 h.p. has a four-cylinder engine, with a bore of 75 mm. and a stroke of 100 mm. Lubrication is mechanical and dual ignition is fitted. The clutch is of the metal-to-metal cone type, and the gearbox is close up against the clutch, thus dispensing with any need for a universal joint in the clutch shaft. The back axle is of the usual bevel drive variety. One of these cars is shown with a landaulette body, extension front, and Cromwell patent folding wind-screen, and another with a very neat two-seated body. Probably the chassis that will appeal most to doctors is the new 8 h.p., which has a slightly more powerful engine than the 7 h.p. of last year: otherwise the car is built on similar lines, and with a two-seated body should make an ideal car for the man who drives himself.

The London Motor Garage Co., Limited, on Stand 82 show various models of Charron cars, and especially recommend for doctors their 15 h.p. two-seated runabout fitted with an extra folding seat, and their 15 h.p. landaulette. This firm are prepared to sell these cars on the hire-purchase system or to enter into a contract for maintenance and all running expenses of a car.

Messrs. Lorraine, Dietrich, and Co. show their British-built car, a 20–30 h.p., on Stand 68, and on Stand 71 the exhibits hail from the original establishment at Lunéville. The 12 h.p. four-cylinder live-axle car, fitted with a three-quarter landaulette body by Salmons, has a special lock, and is thus well suited for town use.

Messrs. Osborn and Co., Limited, have on Stand 29 a 9 h.p. two-cylinder and four 14–16 h.p. four-cylinder Gregoire cars. These models are practically the same as those shown last year, except that now the gate change speed is fitted in lieu of the quadrant type. There is a rumour that Automobiles Gregoire of Poisay are building a single-cylinder chassis which will be put on the market early next year, and probably at a price not far off £100. On this stand are some specimens of the Lynton resilient wheel.

Stand 59 will undoubtedly be frequented by many medical men, as the Rover Company have always been well patronised by the profession. Their little 6 h.p., which was described in THE LANCET of August 22nd, 1908, has been

further improved, and is now fitted with two independent ignitions, high-tension magneto and coil and accumulator, and high entrance doors are provided. Their 15 h.p. landaulette, with metal-to-metal clutch, change speed quadrant through cardan shaft, 820 by 120 tyres, is handsomely upholstered and finished in every detail, and is in every way an ideal carriage. This car is also exhibited with a touring four-seater body. Specimens are also shown of their 12 h.p. and 8 h.p. cars.

The Star Engineering Co., who have for several years past specially catered for the motoring doctor, show on Stand 63 specimens of their 10 h.p., 12 h.p., 15 h.p., and 18 h.p. cars. A description of these vehicles and how they are built was given in THE LANCET of Feb. 20th, 1909.

The Standard Motor Co., Limited, have on Stand 53, in the centre of the show, an entirely new 12 h.p. model, with four cylinders $2\frac{5}{8}$ by $4\frac{1}{2}$, wheelbase 8 feet, high-tension magneto ignition, thermo-syphon cooling, and horizontal cardan shaft, with worm drive. A 16 h.p. four-cylinder and two 20 h.p. six-cylinder cars are also shown.

A car that should not be missed is the Straker-Squire on Stand 46. This firm are specialising on one model, a 15 h.p. four cylinder, which is suitable for a two-seater, four-seater, or landaulette body, and specimens with these varieties are shown by them. In another issue I hope to give some details as well as the result of a trial run on this car.

The Swift Motor Co., Limited, are represented on Stand 66 by a couple of their two-cylinder cars—a two-seated body and a side-entrance body. They also have a four-cylinder 15–18 h.p. and one of 18–24 h.p. But the car on their stand which will, I think, appeal to the profession is their new single-cylinder model, a 7 h.p. two-seater, with pressed steel frame, thermo-syphon cooling, magneto and accumulator ignitions, leather-faced clutch, gate change, live axle, and completely enclosed brakes.

On Stand 38 John I. Thornycroft, Limited, show their 18 h.p. as well as their higher powered models. The 18 h.p. has four cylinders cast *en bloc*, forced lubrication to all engine bearings, thermo-syphon cooling, high-tension magneto ignition, metal-to-metal clutch, three-speed gearbox, direct drive on top speed, and the usual live axle. The petrol is fed to the engine by means of pressure taken from the exhaust. On one chassis is mounted a Victoria phaeton, with high front doors, hood, and glass wind-screen.

Messrs. Warwick Wright, Limited, have on Stand 74 various types of 12 and 18 h.p. Metallurgique models. The cylinders are not placed directly over the centre of the crank shaft, but are set to one side, which enhances the power of the motor. The clutch is of the metal-to-metal type, on the principle of the internal expanding brake. Gate-change is fitted, and the writer was so impressed with these productions that he hopes shortly to give a detailed description, together with his experiences of a run on their 12 h.p. Doctor's Car. The one shown is fitted with most luxurious body-work by Messrs. Vanden Plas of Brussels.

The Wolseley Tool and Motor Car Co., Limited, have on Stand 43 various cars. One especially suited for a doctor's requirements was fully described in THE LANCET of Sept. 11th, 1909, only now a considerable number of improvements have been effected. On the new 12–16 h.p. a disc clutch is used, with double universal joints between it and the gearbox, and the drive is by a worm instead of a bevel gear. Another refinement is that the front hubs have Timken roller bearings, which are tapered, and consequently adjustable for wear. The 16–20 is an endeavour to further improve the 14 h.p. mentioned in THE LANCET of Sept. 11th. The engine has a longer stroke and all the improvements common to the new 12–16 model. Any kind of body can be fitted to this model, including a town carriage.

The Show is rather like a pudding—a rich one, too, nearly all plums and but little suet. So that, provided the would-be purchaser knows the limit of his purse and what he wants of his mechanical mount, he should find it easy to pick a decent plum from amongst the collection. The great thing for the medical man, I hold, is not to be too ambitious, not to be too anxious to have a more powerful automobile than is necessary. For the man who drives himself a light two-seater, such as a 6 h.p. Rover, 7–9 Darracq, single-cylinder Austin, small De Dion, little Star, two-cylinder Renault, Adler, or Swift, is hard to beat, while those who are prepared to spend more for initial outlay as well as for upkeep will find ample choice amongst the Armstrong Whitworth, Bentall, Clement, Darracq, Brown, Napier, Enfield, Germain, Hobson, Sizaire and Naudin, Charron, Martini, Panhard, Star, Wolseley, and Vauxhall cars to suit their needs and purses.

Some considerable time occupied in examining carriage work must be reduced to a very few lines. Messrs. Maythorn show a very light and compact miniature limousine, also a coupé landaulette which encloses the driving seat and carries two people inside, besides the driver, and by means of a sliding driving seat the driver has plenty of room to get out on the "off" side behind the levers. Messrs. H. J. Mulliner have an entirely new design of two-seated body, with hood, screen, and high side doors. Landaulettes and limousine bodies are also shown by this firm and by Messrs. W. and F. Thorn, Messrs. Morgan, Messrs. Lawson, and Messrs. Thrupp and Maberly. Certainly in this Show there is a fine display of body-work, but I think a little more attention might with advantage be devoted to the angle of the seats. The cushions are soft enough and foot-rests and warmers are now provided, but those who have to sit in a car as doctors have would, I am positive, feel more comfortable if the backs of their seats were some two inches lower than the fronts. It may be laziness to sit in a tilted-up chair, but I know this: it is more restful than the one parallel to the floor.

Perhaps the most important accessory in connexion with a car is the ignition apparatus. In the gallery practically every type can be seen, and, what is more, many working models are exhibited, so the principles can be easily grasped. The Simms Manufacturing Co. on Stand 257 have their switch starters, which enable the engine to be started from the seat without the trouble of getting down and turning the starting handle. The Bosch Magneto Co. at Stand 192 have a novelty in a magneto capable of giving sparks at the rate of 12,000 a minute. Thomson Bennett, Limited, display on Stand 271 a magneto which has a small epicyclic gear between the drive and the machine, thus the armature can be moved for retard and advance, keeping the maximum position at all points. It is adapted for starting on the switch, without an accumulator. Messrs. J. C. Fuller and Son have working models of their dual ignition with switch starter. The Electric Ignition Co. exhibit improvements in coils, contact breakers, switches, and distributors, and the New Hall E.I.C. dual ignition system. The invention of Sir Oliver Lodge, a patent igniter known by his name, is on Stand 234. The High Tension Co., in addition to magnetos, have an electric horn, the sound of which is said to carry at least half a mile. On Stand 162 the United Motor Industries, among many electric appliances, show "La Magicienne," a dynamo for lighting motor-cars. From magnetos the attention is easily turned to ignition cables, and those thinking of re-wiring their cars will find on Stand 205 all sizes and kinds of rubber-covered and braided insulated wires, which are made by Messrs. E. Kalker and Co.

On Stand 178 Messrs. Longstreth's, Limited, show the Lithanode system of car lighting, by means of which the whole of the interior and exterior illumination of an automobile is supplied from a 4-volt accumulator. This entails a particular form of lamp, as the usual 4-volt lamp is insufficient for head- and side-lights. In the one employed, by means of an adjusting screen, the beam of light proceeding from the lamp is made either parallel or divergent, and the more the rays are contracted the greater the illumination. A complete combination accumulator is also exhibited, which is suitable for both cautery and lighting purposes.

On Stand 164 Messrs. André A. Godin and Co. show a comprehensive selection of lubricators, horns (including the Godin electric horn), piston pumps for oil circulation, jacks, tool outfits, and lamps.

Tyres are an expensive and certainly anxious matter to all who motor, and especially so to medical men, as a burst or puncture may be of serious import when on a professional round. Consequently each year the writer searches through the gallery for something new and cheap. Alas! this year there may be many improvements, but there is no improvement in the matter of price. The Palmer Tyre, Limited, manufacture their corded tyres by a most ingenious machine, which is shown in operation. They exhibit a new light type which is said to be so flexible that it can be fitted even without tyre levers. These are made with a three-ribbed tread, which is deeper than previously, so that they should run an increased mileage. This company also show on Stand 296 a

reliable device which loudly indicates loss of pressure in a tyre before it has become quite deflated. Still, if a sealomatic tube, such as is shown by Messrs. Liversidge, or one of the "Challenge" reinforced inner tubes be used, such an apparatus is not likely to be needed, as with the former, if a puncture occurs, a viscous substance on the inside of the tube fills up the puncture, while with the latter the tube is so protected that it is not likely to burst.

The Continental Tyre and Rubber Co., Limited, the Avon India Rubber Co., Limited, Gaulois Tyres, Limited, the Shrewsbury and Challiner Tyre Co., Limited, the B. F. Goodrich Co., Limited, Messrs. David Moseley and Sons, Limited, the Samson Leather Treads and Tyre Company, Messrs. Dunlop, Messrs. Michelin, and Messrs. Liversidge are all represented, and any of their goods should give satisfaction, provided the tyres chosen are of sufficient size in relation to the weight of the car, and are kept properly inflated and have all cuts filled in directly they occur. In this connexion the Harvey-Frost vulcanizer merits attention, as it is both a prevention and a cure for punctures, and by its means damaged covers and tubes can be quickly and thoroughly treated and rendered fit again for their respective duties. There is no doubt that the increased price of rubber and the corresponding higher cost of tyres are unfortunate for the motorist, but the reverse for the tyre repairing specialists. With tyres at their present price tyre economy is essential, and the appliances of Messrs. Harvey, Frost, and Co., Limited (Stand 207), are a help in obtaining the longest life out of a tyre. This firm have unqualified confidence in their apparatus, for they offer to loan one to any motorist for 10 days free of charge, and they also have special terms for the profession, which can be had on application at 27, Charing Cross-road. The Allen-Liversidge brake, which was fully described in THE LANCET of Nov. 14th, 1908, p. 1463, is shown. It is undoubtedly to a certain extent a preventive of side slip; and, what is also important, it obviates wear on the transmission gear and tyres.

On Stand 295 in the gallery the Midland Rubber Co., Limited, show the Ajax non-skid tyre, which is a combination of rubber studs and rubber ribs, with a row of metal studs running down the centre. It is certainly an insurance against skidding. They also exhibit a detachable rim, which can be exchanged quickly, the only tools needed for manipulation being the fingers.

The Kempshall Tyre Co., Limited, have on Stand 294 their ribbed non-skid tyre and their light anti-skid tyre. The latter has a round tread with rubber studs on the sides. Both are successful in obviating skids, and they have one advantage over the more certain metal-studded non-skids—they wear better and last longer. The Kempshall emergency patch is a useful accessory. It is sprung into a damaged cover, the tube is inflated, and then, to use their own descriptive phrase, it "always grips, never slips."

(To be continued.)

MEDICINE AND THE LAW.

The Relations, Past and Future, of the Medical and Legal Professions.

Sir John Tweedy, in his opening address delivered at the first meeting of the current session of the Medico-Legal Society, of which he is President, gives a very interesting sketch of the early history and development of medicine and law, as well as of medical and legal education (see p. 1435). It will be seen that he traces the course of these two learned professions, following paths not always parallel nor always of equal smoothness, from the classic periods of Athenian and Roman learning through the Middle Ages to the present day, which finds the Medico-Legal Society well established and doing useful work in the ventilation and discussion of questions interesting to both professions and of importance to the public. The Medico-Legal Society is to be congratulated upon the position which it has already attained, and if it ever succeeds in accelerating the change in judicial procedure suggested by Sir John Tweedy at the close of his address it will have good reason to be proud. We refer to the possible employment of medical assessors to assist judges, and on fitting occasions to displace juries in cases in which medical evidence is laid before courts of law. The weighing of conflicting medical opinions is conducted under conditions neither satisfactory to the medical profession nor advantageous to the community. The jury is not to be lightly dispensed with, particularly in cases where the personal safety or the liberty of the subject is involved, but at the same time the jury never has been, and never will be, asked to decide all the matters at issue in a trial whether civil or criminal. Our meaning is that questions of law are argued before and decided by the presiding judge, and we submit that this is done not because law is a mystery revealed to a select few or a science beyond the grasp of ordinarily intelligent minds, but simply because such minds need to be trained in the science and practice of law before the points which arise in argument with regard to it can be properly weighed and distinguished. In like manner those trained in medical science may often put forward divergent opinions when called into the witness box, and the subject may be such that an eminent man of science after listening to both sides would find it difficult to arrive at a correct conclusion. He might be wrong in his view, just as a judge is found to have been whose decision is reversed on appeal. Nevertheless, scientific issues are left to be decided by a jury, under the direction of a judge, as "questions of fact," or they are adjudicated upon by a judge, a process which might be compared to that of leaving questions of law to be argued before a jury under the presidency of an eminent physician or surgeon, or at times before him alone. We have spoken above of the accelerating of a change, as if we believed that it were likely to be accomplished in process of time without the assistance of the Medico-Legal Society, and we would justify the expression by pointing to the appointment of medical referees and to their duties under the legislation which in recent years has caused the raising of so many questions relating to the extent and duration of physical incapacity in connexion with the compensation of workmen. A new principle seems here to have been introduced in the trial of scientific questions in cases which are of frequent occurrence, but which, considered in relation to the issue at stake, may be of minor significance. The correct appraisement of the incapacity of a workman earning 25*s.* a week is important, but so are the reality and extent of the injuries sustained in a railway accident by a wealthier man who claims thousands of pounds. And still more urgent are the calls for justice in the case of the alleged insanity of a testator who has sought to dispose of millions by will, or in that of a man whose life hangs upon the question whether or not he wilfully murdered his fellow man. Surely there is greater need in these last instances of some form of medical assessors.

The English and Scottish Courts and the Plea of Insanity.

The highly interesting and, indeed, exhaustive article of Professor John Glaister which we publish this week sets out the practice of the courts of Scotland with regard to the raising of the plea of insanity at the trial of charges of murder or of other crimes, and compares it with the procedure prevailing in England. In particular he calls attention to recent cases in Scotland, where the events described might be possible as a matter of law in England, though they would be contrary to established practice. The raising of the question of the sanity of the prisoner as affecting his capacity to plead is usually reserved in England for those cases where the state of the prisoner's mind is believed to be such that there is a doubt whether his trial might not be regarded as an act of cruel injustice. Professor Glaister's Case 3 (p. 1430), fully set out by the writer, should be of considerable interest to barristers practising in English criminal courts, and not already acquainted with it; as should Case 4, not only with regard to the relative attitudes of prosecution and defence towards the question of insanity, but also in respect of the period in the proceedings at which the decision of the court with relation to the prisoner's capacity to plead was allowed to be still under discussion. English lawyers will probably be of opinion that there is a difference between the courts of Scotland and of England in the judicial attitude towards the defence of insanity. The course pursued by Lord Young in Case 1 was no doubt astonishing to

those engaged in it, but the general effect produced is that of a fuller appreciation on the part of Scotch judges of the possibility of a man who commits a crime with ingenuity, with cool calculation, and with premeditation being in such a mental condition as not to be legally responsible for it. This is a possibility, and in Scotland a position is more readily adopted consistent with this view by prosecuting counsel. In England a person whose insanity is not of a marked and apparent character is usually tried, the possible verdicts being guilty, not guilty, or guilty but insane at the time of the commission of the offence; sanity is presumed until the contrary is proved by those responsible for his defence, and criminal trials will be recalled which have been tried out even when the power of the prisoner to follow the proceedings with any effect and to instruct his counsel rationally must have seemed very doubtful to all concerned. The complete trial of Richard Arthur Prince for the murder of Terriss, the famous actor, may be cited as an instance where a verdict of insanity was a foregone conclusion. It may be added that the raising of the issue of fitness to plead in the well-known case (No. 3) cited by Professor Glaister, where the actual committing by the accused of the acts alleged was open to serious question, and in spite of resistance upon the part of defending counsel, is difficult to understand or to justify, and only less strange than the allowing this issue to be decided after trying out the case without a conclusion being arrived at as to whether he killed the deceased or not. From a medical point of view the jury may be said to have had left to it the scientific question which it was least competent to answer, and to have been allowed to return no verdict as to the one matter on which it was best qualified to deliver one, although it had before it all the evidence obtainable on the subject.

Sale of Medicines.

The case of the Pharmaceutical Society *v.* Mercer, before Mr. Justice Darling and Mr. Justice Bucknill on Oct 28th, was an appeal by the defendant from a decision of the county court judge at St. Helens. The plaintiffs sued the defendant to recover a penalty under Section 12 of the Pharmacy Act, 1852, which makes it unlawful for a person who is not registered to use the title of pharmaceutical chemist or pharmaceutist or to assume, use, or exhibit any name, title, or sign implying that he is registered under the Act or that he is a member of the Pharmaceutical Society. The defendant, who was not registered under the Act, sold medicines at a shop on which, and on the medicines sold by him, was the defendant's name, followed by the words "The Pharmacy." The county court judge found that the defendant had contravened Section 12 by the use of the words "The Pharmacy" in the circumstances stated, and he accordingly imposed a penalty. The defendant appealed. The court allowed the appeal, being of opinion that the words "The Pharmacy" were descriptive of the place where the defendant carried on business, and were not descriptive of the defendant himself, and that they did not imply that the defendant was registered under the Act or was a member of the Pharmaceutical Society.

"Dr." Bodie.

After a prolonged trial "Dr." Bodie has been adjudged by a jury to have been guilty of fraudulent misrepresentation, and has been ordered to repay the sum of £1000 which he obtained from a young man who desired to be initiated into the mystery of his outrageous performances. We congratulate the plaintiff, Mr. Irving, on his success and on its resulting in an exposure of Bodie and Bodie's methods.

ROYAL SOCIETY OF ARTS.—The meetings of the Royal Society of Arts will recommence on Wednesday, Nov. 17th, at 8 P.M., when Sir William White, Vice-President and Chairman of the Council, will deliver an address entitled "An Imperial Navy." The subject of the subsequent Wednesday evening discourses before Christmas will be: "Photo-telegraphy," "Resilient Wheels for Vehicles," "Destruction of Plumage Birds," and "Diamond Fields of Brazil." Four Cantor lectures on "Aeronautics" will be delivered at 8 P.M. on Nov. 29th and Dec. 6th, 13th, and 20th. A meeting of the Colonial Section will be held on Nov. 30th, and of the Indian Section on Dec. 9th.

Public Health.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On an Outbreak of Enteric Fever in the Urban District of North Ormesby, by Dr. R. W. JOHNSTONE.[1]—This report deals with the incidence and causation of enteric fever in North Ormesby in 1908. This district, with a population of about 15,000, is practically a continuation of the town of Middlesbrough. For many years past there has been an undue prevalence of enteric fever in North Ormesby, and last year 63 cases were notified. Of these, 17 were under the age of 10 years; 31 were males and 32 were females. The disease was prevalent through August, September, October, and the early part of November, after which there was a rapid drop in the occurrence of cases. The invaded houses, 49 in number, were, with three exceptions, situated in the north-eastern half of the town, and the majority were found in a particular group of streets. The sewers of this half of North Ormesby form a system distinct from that of the south-western half. In the district generally the sewers have insufficient gradients and are badly laid, while house-drains are often faulty and become choked. The opportunities of sewer air escaping in or about dwellings were increased by the circumstance that in 1908 the sewers were unventilated. A suggestion was made that sewer gas which developed in certain tanks at the outfall works had been able to pass back through the sewers to the north-eastern part of the town, but had been shut off from the rest of the district by a trap accidentally formed by the faulty construction of the main sewer which serves the south-western portion. The tanks in question, however, were not air-tight, and Dr. Johnstone considers that the back pressure which would be necessary could hardly have taken place. The district is served by midden privies and pail closets in about equal numbers. Most of the invaded houses had midden privies. The grouping of the invaded houses could to some extent be accounted for on the probable assumption that middens in the area specially affected became infected early in the outbreak, and that infection was caused by these middens through the agency of flies or in other ways. Stable manure is well known to be a favourite breeding place for flies, and Dr. Johnstone notes that there was a stable in the centre of the region specially affected. Flies were reported to be exceptionally abundant in North Ormesby during the autumn of last year. Dr. Johnstone also reviews, mainly with negative conclusions, the influence of water and milk-supplies, and also of certain foods, shell-fish, fried fish, ice-cream, and uncooked vegetables. In regard to the latter foods he adopted the useful plan of comparing the results of the inquiries which had been made as to the diet of the persons attacked with the facts obtained in course of a census taken in two or three typical streets. For this census inquiries were made at 174 houses and of 827 persons, so as to obtain a rough idea of the normal frequency with which the several articles in question are consumed by the population. No very marked discrepancy appeared between the information obtained as to the persons attacked and that which was provided by the census, except in the case of shell-fish. Only 60 out of the 827 persons said that they had eaten shell-fish of one sort or another during the summer of 1908, whereas out of 62 cases of enteric fever in which inquiry was made 16 were reported to have eaten shell-fish within a period of from 5 to 21 days before the onset of the enteric fever. Mussels and periwinkles which are hawked in North Ormesby are usually obtained from the Tees below Middlesbrough, where the river is badly contaminated by sewage.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of Glasgow.—There is very material disparity between the population of Glasgow as estimated (859,715) by the Registrar-General on the one hand and by the medical officer of health (801,250) on the other, and Dr. A. K. Chalmers makes use of the circumstance to emphasise the necessity for a quinquennial census, since under existing conditions the Registrar-General credits Glasgow with an

[1] Public Health Reports, New Series, No. 17. London: Wyman and Sons, Fetter-lane; Edinburgh: Oliver and Boyd; Dublin: E. Ponsonby. Price 4d.

increase and the medical officer of health with a decrease of population, and, as a result, all the rates for the year under notice must be accepted as provisional only. The infantile death-rate of this city for 1908 was 136 per 1000 births, a rate which was materially exceeded by Dundee, Manchester, and Birmingham. During the years 1907–08 an inquiry into the physical condition of Glasgow children was conducted by Dr. A. S. M. MacGregor among the patients admitted into the Belvidere Fever Hospital, the object of the investigation being to obtain a record of the height and weight of children under school age, and to ascertain the child's capacity for immediate improvement under better conditions than those to which it had been accustomed. The inquiry further aimed at obtaining information as to the physique of the rachitic child and its relation to housing conditions and as to the physique of infants in relation to their susceptibility to infectious disease. Some of the results of this inquiry have already appeared in our columns,[1] but we may briefly deal here with the rachitic conditions found. Of 1357 children between the ages of 2 and 10 years rickets were discovered in 31 per cent. of the males and 26·7 per cent. of the females, while of 329 children aged from 6 months to 2 years the incidence upon the combined sexes was 42·5 per cent. In the matter of the possible influences of parentage in production of rickets, an instructive table is furnished in Dr. Chalmers's report, showing that in cases where the parents and child were Glasgow born the incidence (44·4 per cent.) of rickets was greater than in cases where the Glasgow native was less and less concerned. For example, where the parents and children were born out of Glasgow the percentage incidence of rickets was only 25·4 per cent. Of the cases of enteric fever occurring in Glasgow during 1908 87·7 per cent. were treated in hospital and the fatality-rate was 12·1 per cent. The death-rate from this disease in Glasgow has steadily decreased since 1881–90, when it was 0·230 per 1000. There was a "return" case of enteric fever during 1908 in connexion with a patient who had been recently discharged from hospital and in whose urine the pathogenic bacteria were discovered, and as recently as July, 1909, the organisms were still recoverable from the urine. Of typhus fevers there were 13 cases with 1 death. There is a capital chart in the report showing the monthly variations of scarlet fever in each year from 1898 to 1908. In 1898 the disease was ascending and reached its maximum in 1899, there being after that a gradual descent until 1905, when a rise again commenced. The death-rate from pulmonary tuberculosis has undergone steady diminution since the quinquennium 1860–64, when it amounted to 4094 per 1,000,000, the rate having reached in 1908 the low figure of 1417 per 1,000,000. Upon the subject of pulmonary tuberculosis Dr. Chalmers contributes a special memorandum in which he deals with such interesting subjects as the segregation of early or advanced cases, and he comes to the conclusion that perhaps the greatest good would accrue from a training for one month in a sanatorium of relatively early cases of the malady, the object of such training being to teach the patients how to regulate their lives with best prospects to their own health and least risks to those with whom they are brought into contact. Dr. Chalmers points out that if the patient learns to control both his sputum and the droplets coughed up "he will accomplish so far as direct prevention of infection is concerned all that isolation in hospital may accomplish. He may, in effect, and by his own action, isolate himself in a way quite unknown in connexion with the other infectious diseases." Dr. Chalmers has advised, and the corporation has accepted, a system of compulsory notification of cases of pulmonary tuberculosis and it has also accepted his further recommendations to provide five additional tuberculosis dispensaries in addition to the one which already exists.[2] There is to be a nurse in connexion with each of these institutions and their visits to the homes of the patients are to be supervised by a medical officer specially appointed for the purpose. In this way Dr. Chalmers hopes to improve the circumstances under which the patients and the people in the invaded houses live and thus to raise the condition of the contacts above what has been termed the pre-tuberculous stage. He lays great stress upon the importance of resistance as a factor in the prevention of phthisis, and as regards the part which may be played in causation of tuberculosis by the human or bovine sources he observes: "Whatever subsequent inquiry may establish regarding the part played by either in distributing infection or regarding the precise channels by which it reaches the child, there does not seem much ground for anticipating that it will substantially alter the view which is so widely held at present, that receptivity or susceptibility to infection is probably, even more than the presence of the bacillus, the dominating factor in determining the development of the disease." He estimates the cost of a sanatorium with 100 beds, which would train 1200 patients annually in sputum control and the like, at £8000, apart from interest on the capital sum expended and the repayment of such capital; and he observes that in view of the many insanitary portions of Glasgow which still require to be dealt with it may be suggested that the expenditure of £8000 annually in removing foci of disease could not fail eventually to be productive of permanent advantages, not only with regard to consumption, but to disease generally.

[1] THE LANCET, August 14th, 1909, p. 500.
[2] See also THE LANCET, Nov. 6th, 1909, p. 1364.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8350 births and 4180 deaths were registered during the week ending Nov. 6th. The annual rate of mortality in these towns, which had been equal to 12·0 per 1000 in each of the two preceding weeks, rose to 13·3 in the week under notice, and was higher than in any week since the middle of May. During the first five weeks of the current quarter the annual death-rate in these towns averaged 12·5 per 1000, and in London during the same period the rate did not exceed 12·2 per 1000. The lowest annual rates of mortality recorded in the 76 towns last week were 5·2 in Leyton, 5·8 in Barrow-in-Furness, 6·8 in Willesden, and 7·3 in East Ham; the rates in the other towns ranged upwards, however, to 18·6 in Grimsby, 19·4 in Bury, 20·8 in Middlesbrough, and 22·7 in Hanley. In London the recorded death-rate last week increased to 13·4 per 1000. The 4180 deaths registered in the 76 towns last week exceeded by 394 the low number in the previous week, and included 283 which were referred to the principal epidemic diseases, against numbers declining steadily in the ten preceding weeks from 849 to 293; of these 283 deaths, 111 resulted from diarrhœa, 43 from measles, 42 from diphtheria, 36 from scarlet fever, 31 from whooping-cough, 19 from "fever" (principally enteric), and one from small-pox. The 283 deaths from these epidemic diseases last week were equal to an annual rate of 0·9 per 1000, corresponding with the low rate from these diseases in the previous week. No death from any of these epidemic diseases was registered last week in Croydon, East Ham, Walthamstow, Leyton, or in 11 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·3 in Hull, 2·6 in Walsall, 2·9 in Wallasey, and 9·1 in Hanley. The deaths attributed to diarrhœa in the 76 towns, which had declined in the 10 preceding weeks from 675 to 110, were 111 last week; the highest death-rates from this cause in the 76 towns last week were 1·3 in Preston, 1·5 in Wallasey, 2·1 in Walsall, and 3·0 in Hanley. The fatal cases of measles showed a further increase to 43 last week, and exceeded the number in any week since the middle of August; they caused annual rates equal to 1·4 in Ipswich, 1·6 in Hornsey, and 4·5 in Hanley. The deaths from diphtheria, which had been 46 and 57 in the two previous weeks, declined to 42 last week, and included 15 in London and its suburban districts, 4 in Manchester and Salford, 4 in Hull, 3 in Portsmouth, 3 in Birmingham and King's Norton, and 2 each in Sunderland and South Shields. The 36 fatal cases of scarlet fever showed an increase of 6 upon the number in the previous week; 6 occurred in Manchester, 4 in Birmingham, and 3 in Liverpool. The 31 deaths from whooping-cough were fewer by 11 than the number in the previous week, but included 16 in London and its suburban districts. The 19 deaths referred to "fever" showed a slight increase, and included 2 each in Portsmouth, Hanley, and Bolton. The fatal case of small-pox was registered in Swansea. The number of scarlet fever patients under treatment in the Metropolitan Asylums and London Fever Hospitals, which had been 2810, 2799, and 2743 on the three preceding Saturdays, had further declined to 2696 on Saturday last; 336 new cases of this disease were admitted to these hospitals during last week, against 371,

345, and 284 in the three preceding weeks. The Metropolitan Asylums Hospitals contained 3 small-pox patients on Saturday last. Of the 1246 deaths registered in London last week, 230 were referred to pneumonia and other diseases of the respiratory system, against 167, 174, and 193 in the three preceding weeks; these 230 deaths were, however, 43 below the corrected average number in the corresponding week of the five years 1904–08. The causes of 26, or 0·6 per cent., of the deaths registered last week in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered last week were duly certified in London, Manchester, Sheffield, Bristol, West Ham, Bradford, Newcastle-on-Tyne, and in 55 smaller towns; the 26 uncertified causes of death in the 76 towns last week included 9 in Liverpool, and 2 each in Leeds, South Shields, Gateshead, and Burton-on-Trent.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 790 births and 547 deaths were registered during the week ending Nov. 6th. The annual rate of mortality in these towns, which had been equal to 13·1 and 12·9 per 1000 in the two preceding weeks, rose to 15·3 in the week under notice. During the first five weeks of the current quarter the annual death-rate in these Scotch towns averaged 13·2 per 1000, and exceeded by 0·7 the mean rate during the same period in the 76 large English towns. The annual death-rates last week in these Scotch towns ranged from 8·5 and 11·6 in Perth and Leith, to 15·9 in Greenock and 18·2 in Glasgow. The 547 deaths from all causes in the eight towns last week showed an increase of 85 upon the number in the previous week, and included 67 which were referred to the principal epidemic diseases, against 54 and 34 in the two preceding weeks. These 67 deaths were equal to an annual rate of 1·9 per 1000; the mean rate from the same diseases last week in the 76 largest English towns did not exceed 0·9 per 1000. The 67 deaths from these diseases in the Scotch towns last week included 24 from measles, 13 from diphtheria, 13 from diarrhœa, 11 from whooping-cough, 4 from scarlet fever, and 2 from "fever," but not one from small-pox. The 24 fatal cases of measles showed a marked increase upon recent weekly numbers, and included 18 in Glasgow and 5 in Edinburgh. The 13 deaths from diphtheria also showed a considerable increase; 9 were returned in Glasgow and 2 in Leith. The 13 deaths attributed to diarrhœa exceeded the number in the previous week by 3, and included 7 in Glasgow, 4 in Dundee, and 2 in Paisley. The 11 fatal cases of whooping-cough also showed an increase; 6 occurred in Glasgow, and 3 in Greenock. Three of the 4 deaths from scarlet fever were recorded in Glasgow; and of the 2 referred to "fever" one each occurred in Glasgow and Edinburgh. The deaths referred to diseases of the respiratory system in the eight towns, which had been 84 and 68 in the two preceding weeks, rose last week to 108, but were 8 below the number in the corresponding week of last year. The causes of 12, or 2·2 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,142,308 persons, 608 births and 381 deaths were registered during the week ending Nov. 6th. The mean annual rate of mortality in these towns, which had been equal to 14·8 and 16·4 per 1000 in the two preceding weeks, further rose to 17·4 in the week under notice. During the first five weeks of the current quarter the annual death-rate in these Irish towns averaged 15·8 per 1000, whereas the mean death-rate during the same period did not exceed 12·5 in the 76 largest English towns, and 13·2 in the eight principal Scotch towns. The annual death-rate last week was equal to 18·6 in Dublin, 15·6 in Belfast, 22·6 in Cork, 15·7 in Londonderry, and 13·7 in Limerick; the mean rate in the 16 smallest Irish town districts last week was equal to 19·5 per 1000. The 381 deaths from all causes in the 22 town districts last week showed a further increase of 22 upon the numbers in the two previous weeks, and included 21 which were referred to the principal epidemic diseases, against 22 and 26 in the two preceding weeks; these 21 deaths were equal to an annual rate of 1·0 per 1000; in the 76 largest English towns the rate last week from the same diseases did not exceed 0·9 per 1000. The 21 deaths from these epidemic diseases in the Irish towns last week included 12 from diarrhœa, 5 from whooping-cough, and 4 from enteric fever, but not one from measles, scarlet fever, diphtheria, or small-pox. The 12 deaths attributed to diarrhœa corresponded with the number in each of the two preceding weeks, and included 4 in Belfast, 3 in Sligo, and 2 both in Dublin and in Cork. Four of the 5 fatal cases of whooping-cough occurred in Belfast; and of the 4 deaths referred to enteric fever, 2 were returned in Cork and 1 both in Dublin and in Drogheda. The deaths resulting in the 22 towns from pneumonia and other diseases of the respiratory system, which had been 50 and 60 in the two preceding weeks, further rose to 86 in the week under notice. The causes of 13, or 3·4 per cent., of the deaths in these Irish towns last week were not certified by a registered medical practitioner or by a coroner; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent., and in the eight Scotch towns the proportion was 2·2 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Surgeons: A. R. Schofield to Hong-Kong Hospital; J. E. Johnston to the *Ringdove;* C. A. G. Phipps to the *Pembroke* for R.N. Barracks; T. W. Myles to the *Hyacinth;* W. F. Archibald to Chatham Hospital; and A. McCloy to the *Pembroke* for R.N. Barracks.

ROYAL ARMY MEDICAL CORPS SCHOOL OF INSTRUCTION.

Lieutenant-Colonel George D. Hunter, D.S.O., R.A.M.C., to be Commandant, vice Lieutenant-Colonel C. E. Nichol, D.S.O. (dated Nov. 1st, 1909).

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors (dated Oct. 28th, 1909):—Brian Watts, Henry G. Martin, Frederick F. Carroll, John D. G. Macpherson, William P. Gwynn, Standish de C. O'Grady, Augustus H. O. Young, Ernest A. Bourke, Montagu M. Lowsley, Gerald B. Carter, and Norman H. Ross.

Captain Arthur C. H. Gray, from the Seconded List, is restored to the establishment (dated Oct. 25th, 1909).

Surgeon-General W. W. Kenny, at present serving as Principal Medical Officer in South Africa, has been appointed Principal Medical Officer of the Northern Command. Colonel O. E. P. Lloyd, V.C., Principal Medical Officer, 7th (Meerut) Division, India, has been appointed Principal Medical Officer, South Africa. Lieutenant-Colonel F. J. Jencken has been appointed to charge of the Royal Victoria Hospital, Netley, and Lieutenant-Colonel A. Kennedy to the charge of D Block of the same institution. Lieutenant-Colonel R. J. C. Cottell has been appointed Physician and Surgeon to the Royal Hospital, Chelsea, and Major F. Kiddle Deputy-Surgeon. Major T. W. Gibbard has been appointed Lecturer in Syphilology at the Royal Army Medical College, Millbank, S.W., and to charge of the Military Hospital, Rochester-row.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions:—Captains to be Majors (dated July 28th, 1909): John Walter Forbes Rait, Eugene John O'Meara, Spencer Hunt, and Henry Albert John Gidney. Lieutenants to be Captains (dated Sept. 1st, 1909): John Taylor, Alexander Dron Stewart, Claude Harold Cross, Robert Alexander Chambers, John Morison, Samuel George Steele Haughton, Francis William Cragg, Andrew Smith Leslie, Herbert Bodley Scott, and George McGregor Millar.

Captain G. W. Maconachie has been appointed to the substantive medical charge of the 73rd Carnatic Infantry vice Captain W. C. Hamilton. The services of Captain Dulton have been temporarily placed at the disposal of the Bengal Government. Captain Powell, Officiating Superintendent of Mi'apore Jails, is granted six months' leave. Major Smith is appointed a Civil Surgeon at Quetta.

TERRITORIAL FORCE.

Royal Field Artillery.

2nd Highland Brigade: Surgeon-Lieutenant Lloyd Turton Price, from the 1st Forfarshire Royal Garrison Artillery

(Volunteers), to be Surgeon-Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908).

Royal Army Medical Corps.

South Wales Mounted Brigade Field Ambulance: Captain John Griffiths, from the List of Officers attached to units other than Medical Units, to be Captain (dated August 10th, 1909).

3rd Highland Field Ambulance: Lieutenant Sidney W. Smith resigns his commission (dated June 15th, 1909). Henry James Gorrie to be Lieutenant (dated Sept. 10th, 1909).

2nd West Lancashire Field Ambulance: George Charles Edward Simpson to be Lieutenant (dated Oct. 4th, 1909).

2nd Lowland Field Ambulance: Lieutenant James A. H. Aitken to be Captain (dated Oct. 28th, 1909).

2nd North Midland Field Ambulance: Captain Montague S. W. Gunning resigns his commission (dated Sept. 1st, 1909).

2nd Welsh Field Ambulance: Owen Lewellin Rhys to be Lieutenant (dated Sept. 25th, 1909).

1st Scottish General Hospital: Captain William A. I. Fortescue resigns his commission (dated Oct. 9th, 1909).

Attached to Units other than Medical Units.—Lieutenant Harry Armitage Robinson to be Captain (dated Sept. 28th, 1909).

The transfer of Surgeon-Lieutenant Lloyd Turton Price from the 1st Forfarshire Royal Garrison Artillery (Volunteers), which was announced in the *London Gazette* of Nov. 6th, 1908, is cancelled.

Correspondence.

"Audi alteram partem."

THE LATE DR. JOHN HERBERT WELLS.

To the Editor of THE LANCET.

SIR,—The death of Dr. John Herbert Wells last month at the early age of 30 years adds another name to the list of those who have lost their lives in the cause of scientific medical research.

After distinguishing himself in original research, Dr. Wells joined the department of therapeutic inoculation at St. Mary's Hospital, where this branch of treatment was advanced materially by his labours. In February, 1908, Dr. Wells undertook pioneer investigation of the treatment of glanders, and in the course of laboratory work which resulted in saving the life of the patient from this, till then, hopeless disease, contracted infection himself, and died after 18 months of suffering on Oct. 16th, 1909, leaving a widow and two small children almost totally unprovided for.

Throughout his long illness Dr. Wells's constant hope was to return to the work in the cause of which he had suffered so severely. He was held in high esteem by the members of his profession, and his thoroughness and personality won him many friends, as the obituary notice in THE LANCET of Oct. 23rd abundantly testified. His life was rich with promise and was laid down with manly fortitude as the penalty of his scientific zeal.

A committee has been formed, consisting of the Right Hon. A. J. Balfour, M.P., the Earl of Dalhousie, Lord Justice Fletcher Moulton, Sir Almroth Wright, M.D., F.R.S., Mr. H. A. Harben (late chairman of St. Mary's Hospital), Mr. Julian G. Lousada, Mr. Edmund Arthur Smith (of the Stock Exchange), and Dr. W. H. Willcox; and they now appeal to the public for donations to a fund to be held in trust for Dr. Wells's widow and children.

The committee (on whose behalf we write) feel strongly that in such a case as this, where a man has laid down his life in trying to relieve the sufferings of mankind, it is eminently fitting that some recognition should be made of his work, and they have full confidence that the public will make a ready response to their appeal.

All contributions sent to the Honorary Secretaries and Treasurers of the fund at 16, Old Broad-street, London, E.C., will be gratefully acknowledged.

Yours faithfully,

DALHOUSIE,
JULIAN G. LOUSADA, } Joint Honorary Secretaries and Treasurers.

16, Old Broad-street, London, E.C., Nov. 11th, 1909.

List of present subscriptions already promised or received:—

	£	s.	d.
Sir Edward Tennant ...	100	0	0
Lady Tennant	100	0	0
Anonymous	100	0	0
Right Hon. A. J. Balfour, M.P.	25	0	0
The Earl of Dalhousie ...	25	0	0
Lord Justice Fletcher Moulton	25	0	0
Hon. Rupert Guinness ...	25	0	0
Mr. Max J. Bonn	25	0	0
Mr. E. J. Stephens... ...	25	0	0
Dr. W. H. Willcox	25	0	0
Mr. and Mrs. Julian G. Lousada	25	0	0

THE LANCET Relief Fund	£	s.	d.
	25	0	0
Major Alexander H. Davis	21	0	0
Mr. Morton Smale	20	0	0
Mr. H. A. Harben	20	0	0
Mr. Herbert G. Lousada	10	10	0
Mr. P. C. Fawcett	10	10	0
Mr. Lewis H. Samuel ...	5	5	0
Mr. Philip S. Waley ...	5	5	0
Mr. Edmund A. Smith	5	5	0
Miss Margaret Knowles	3	3	0
Miss Natalie Beard... ...	3	3	0

*** We are able to announce that the colleagues of the late Dr. J. H. Wells on the staff of the department of therapeutic inoculation at St. Mary's Hospital are making an independent subscription which will be added to the fund later. We shall be happy to receive and acknowledge subscriptions to this fund.—ED. L.

THE STATUS LYMPHATICUS.

To the Editor of THE LANCET.

SIR,—The prominence which has been given in the press during the last three years to the subject of deaths under chloroform has produced in the public mind a feeling of considerable uneasiness, and it is surprising to remember in this connexion how small is the progress we are making towards understanding the lymphatic state. At the risk of an accusation of prematurity, but in the hope of stimulating discussion, or at least some publication of experiences, I venture to submit a few words on the subject, suggesting the line of thought which has been forced upon me by a study of the literature available and by a retrospective examination of my clinical records.

Definition.—Status lymphaticus is a name given to a combination of conditions found post mortem in the bodies of certain young persons who have died suddenly and "unaccountably," or from "inadequate" causes, of which the inhalation of chloroform vapour is here assumed to be the most important. Evidence has frequently been given that such patients presented during life no disease or peculiarity beyond the presence of "adenoids," for the cure of which they may have been undergoing operation at the moment of death.

The Vienna School recognised the importance of this condition as a factor in causing danger in anæsthesia many years before the rest of Europe, or America, began to pay attention to it (J. Ewing). The researches tend to show that status lymphaticus cannot be entirely rejected as a pathological entity, although it, as a picture or idea, is open to the criticisms which have demolished the old pathological "diatheses."

Post-mortem findings.—There have usually been some or all of the following in order of frequency: (1) enlargement of a few, or many, groups of lymphatic glands and of the lymph follicles of the intestinal mucosa; (2) enlargement of the spleen; (3) persistence of the thymus gland in a functional condition; (4) hyperplasia of the red bone marrow; (5) enlargement of the thyroid body; (6) in infants, signs of rickets; (7) in adolescents, hypoplasia of the heart and narrowing of the aorta.

Clinical realities.—Paltauf's theory, supported by Warthin, that the condition is a "lymphotoxæmia," with compensatory enlargement of the thymus, receives support from a comparison of the three types of patient (now to be described), who may, and not infrequently do, exhibit untoward symptoms when under the influence of chloroform. It is noteworthy that the condition in all three types occurs in young or early mature persons.

1. Young persons, chiefly female, suffering from chronic anæmia and constipation—both points which may be easily overlooked or under-estimated by the anæsthetist in his preliminary examination. When the tissues of a patient are already saturated with one poison, the addition of a very small dose of another may be fatal (and this applies not only to this type of case, but also to the two other types which follow). The danger of giving morphine to a nephritic patient is an example. In cases of pronounced

copric anæmia the tissues are in a low state of vitality and are liable to outright destruction by a very small dose of chloroform. The heart's action is always weak, and often slow and irregular, so that pulse and respiration seem to fail simultaneously when danger appears under chloroform; the fact that artificial respiration applied without delay is usually successful in restoring the patient proves that in these cases the respiratory centre is more deeply poisoned than the heart muscle. Pure chloroform should never, when possibly avoidable, be given to such patients, and the greatest vigilance and care are necessary when administering mixtures.

2. Young persons, more often males, often largely and loosely built, who show on examination: (*a*) some enlargement of the thyroid and fulness of the episternal notch; (*b*) a palpable or percussible enlargement of the spleen; (*c*) *an abnormally slow and inexcitable pulse*, and this in spite of the fact that the patient may be in a miserably anxious and apprehensive state on account of the imminence of the operation. With this there may be, but not constantly, dilatation of the heart. The face is anæmic and rather vacuous, and the pallor may be masked by some degree of cyanosis. These are the cases, in my opinion, to which the name "Status Lymphaticus" should be restricted. The behaviour of these patients under anæsthetics other than chloroform is interesting and suggestive collateral. For instance, nitrous oxide is the most frequently used of all anæsthetics in this country, and the users of this gas can, with little trouble, supply a mass of clinical material of the greatest value. In my experience (15 cases under all anæsthetics) the patient who is only slightly "lymphatic," presenting no signs beyond some lividity of the hands and slight sluggishness of the pulse, requires much more than the normal volume (8 to 12 gallons) of N_2O to "get him over," though, once unconscious, the anæsthesia is sometimes profound and lasting. Such a patient may require as much as 20 gallons of N_2O, especially in warm damp weather. Again, a patient who presents all the signs of lymphatism in a well-marked degree may be totally insusceptible to the narcotising properties of N_2O. He may inhale 30 or 40 gallons without admixture of air for even three minutes and show no result whatever beyond slight dizziness and profuse perspiration. These patients, I believe, always show some abnormality of reaction to nitrous oxide, they *may* show danger signs under chloroform-ether mixtures, and under pure chloroform they almost certainly *will* give trouble. Their reaction to ether does not seem to differ greatly, if at all, from the normal, though Heusler reports a death *after* ether and much loss of blood.

3. *Young parturient women.*—No clinical observation has ever been so mistaken as that which stated that pregnancy conferred immunity from the poisonous effects of chloroform. There are here more factors than one tending to produce too easily an overdose of chloroform vapour (the favourite anæsthetic under these circumstances). There is the diminished "vital capacity" due to encroachment upon the diaphragmatic portion of the thorax, there is the increased carrying capacity of the red blood corpuscles, there is the physical exhaustion produced by prolonged pain and muscular activity, and, hand in hand with this, there is toxæmia from over-metabolism plus fœtal metabolism. It is thus not surprising that artificial respiration is fairly commonly called for, and nothing else is necessary, because the heart is stronger than normal, and it is respiration which undoubtedly fails first.

It is only because the subject is one of general interest at the present time that I do not reserve the matter for the collection of further material.

I am, Sir, yours faithfully,

DONALD J. MUNRO, B.S., M.B. Lond.,
Anæsthetist to the Metropolitan Ear, &c., Hospital.

Welbeck-street, W., Nov. 6th, 1909.

LUNG PUNCTURE.

To the Editor of THE LANCET.

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Dorchester, Nov. 6th, 1909. WM. BURROUGH COSENS.

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(Volunteers), to be Surgeon-Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908).

Royal Army Medical Corps.

South Wales Mounted Brigade Field Ambulance: Captain John Griffiths, from the List of Officers attached to units other than Medical Units, to be Captain (dated August 10th, 1909).

3rd Highland Field Ambulance: Lieutenant Sidney W. Smith resigns his commission (dated June 15th, 1909). Henry James Gorrie to be Lieutenant (dated Sept. 10th, 1909).

2nd West Lancashire Field Ambulance: George Charles Edward Simpson to be Lieutenant (dated Oct. 4th, 1909).

2nd Lowland Field Ambulance: Lieutenant James A. H. Aitken to be Captain (dated Oct. 28th, 1909).

2nd North Midland Field Ambulance: Captain Montague S. W. Gunning resigns his commission (dated Sept. 1st, 1909).

2nd Welsh Field Ambulance: Owen Lewellin Rhys to be Lieutenant (dated Sept. 25th, 1909).

1st Scottish General Hospital: Captain William A. I. Fortescue resigns his commission (dated Oct. 9th, 1909).

Attached to Units other than Medical Units.—Lieutenant Harry Armitage Robinson to be Captain (dated Sept. 28th, 1909).

The transfer of Surgeon-Lieutenant Lloyd Turton Price from the 1st Forfarshire Royal Garrison Artillery (Volunteers), which was announced in the *London Gazette* of Nov. 6th, 1908, is cancelled.

Correspondence.

"Audi alteram partem."

THE LATE DR. JOHN HERBERT WELLS.

To the Editor of THE LANCET.

SIR,—The death of Dr. John Herbert Wells last month at the early age of 30 years adds another name to the list of those who have lost their lives in the cause of scientific medical research.

After distinguishing himself in original research, Dr. Wells joined the department of therapeutic inoculation at St. Mary's Hospital, where this branch of treatment was advanced materially by his labours. In February, 1908, Dr. Wells undertook pioneer investigation of the treatment of glanders, and in the course of laboratory work which resulted in saving the life of the patient from this, till then, hopeless disease, contracted infection himself, and died after 18 months of suffering on Oct. 16th, 1909, leaving a widow and two small children almost totally unprovided for.

Throughout his long illness Dr. Wells's constant hope was to return to the work in the cause of which he had suffered so severely. He was held in high esteem by the members of his profession, and his thoroughness and personality won him many friends, as the obituary notice in THE LANCET of Oct. 23rd abundantly testified. His life was rich with promise and was laid down with manly fortitude as the penalty of his scientific zeal.

A committee has been formed, consisting of the Right Hon. A. J. Balfour, M.P., the Earl of Dalhousie, Lord Justice Fletcher Moulton, Sir Almroth Wright, M.D., F.R.S., Mr. H. A. Harben (late chairman of St. Mary's Hospital), Mr. Julian G. Lousada, Mr. Edmund Arthur Smith (of the Stock Exchange), and Dr. W. H. Willcox; and they now appeal to the public for donations to a fund to be held in trust for Dr. Wells's widow and children.

The committee (on whose behalf we write) feel strongly that in such a case as this, where a man has laid down his life in trying to relieve the sufferings of mankind, it is eminently fitting that some recognition should be made of his work, and they have full confidence that the public will make a ready response to their appeal.

All contributions sent to the Honorary Secretaries and Treasurers of the fund at 16, Old Broad-street, London, E.C., will be gratefully acknowledged.

Yours faithfully,

DALHOUSIE,
JULIAN G. LOUSADA, } Joint Honorary Secretaries and Treasurers.

16, Old Broad-street, London, E.C., Nov. 11th, 1909.

List of present subscriptions already promised or received:—

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Sir Edward Tennant ...	100	0	0
Lady Tennant	100	0	0
Anonymous	100	0	0
Right Hon. A. J. Balfour, M.P.	25	0	0
The Earl of Dalhousie ...	25	0	0
Lord Justice Fletcher Moulton	25	0	0
Hon. Rupert Guinness ...	25	0	0
Mr. Max J. Bonn	25	0	0
Mr. E. J. Stephens... ...	25	0	0
Dr. W. H. Willcox... ...	25	0	0
Mr. and Mrs. Julian G. Lousada	25	0	0

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	25	0	0
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Mr. Lewis H. Samuel ...	5	5	0
Mr. Philip S. Waley ...	5	5	0
Mr. Edmund A. Smith	5	5	0
Miss Margaret Knowles	3	3	0
Miss Natalie Beard... ...	3	3	0

*** We are able to announce that the colleagues of the late Dr. J. H. Wells on the staff of the department of therapeutic inoculation at St. Mary's Hospital are making an independent subscription which will be added to the fund later. We shall be happy to receive and acknowledge subscriptions to this fund.—ED. L.

THE STATUS LYMPHATICUS.

To the Editor of THE LANCET.

SIR,—The prominence which has been given in the press during the last three years to the subject of deaths under chloroform has produced in the public mind a feeling of considerable uneasiness, and it is surprising to remember in this connexion how small is the progress we are making towards understanding the lymphatic state. At the risk of an accusation of prematurity, but in the hope of stimulating discussion, or at least some publication of experiences, I venture to submit a few words on the subject, suggesting the line of thought which has been forced upon me by a study of the literature available and by a retrospective examination of my clinical records.

Definition.—Status lymphaticus is a name given to a combination of conditions found post mortem in the bodies of certain young persons who have died suddenly and "unaccountably," or from "inadequate" causes, of which the inhalation of chloroform vapour is here assumed to be the most important. Evidence has frequently been given that such patients presented during life no disease or peculiarity beyond the presence of "adenoids," for the cure of which they may have been undergoing operation at the moment of death.

The Vienna School recognised the importance of this condition as a factor in causing danger in anæsthesia many years before the rest of Europe, or America, began to pay attention to it (J. Ewing). The researches tend to show that status lymphaticus cannot be entirely rejected as a pathological entity, although it, as a picture or idea, is open to the criticisms which have demolished the old pathological "diatheses."

Post-mortem findings.—There have usually been some or all of the following in order of frequency: (1) enlargement of a few, or many, groups of lymphatic glands and of the lymph follicles of the intestinal mucosa; (2) enlargement of the spleen; (3) persistence of the thymus gland in a functional condition; (4) hyperplasia of the red bone marrow; (5) enlargement of the thyroid body; (6) in infants, signs of rickets; (7) in adolescents, hypoplasia of the heart and narrowing of the aorta.

Clinical realities.—Paltauf's theory, supported by Warthin, that the condition is a "lymphotoxæmia," with compensatory enlargement of the thymus, receives support from a comparison of the three types of patient (now to be described), who may, and not infrequently do, exhibit untoward symptoms when under the influence of chloroform. It is noteworthy that the condition in all three types occurs in young or early mature persons.

1. Young persons, chiefly female, suffering from chronic anæmia and constipation—both points which may be easily overlooked or under-estimated by the anæsthetist in his preliminary examination. When the tissues of a patient are already saturated with one poison, the addition of a very small dose of another may be fatal (and this applies not only to this type of case, but also to the two other types which follow). The danger of giving morphine to a nephritic patient is an example. In cases of pronounced

copric anæmia the tissues are in a low state of vitality and are liable to outright destruction by a very small dose of chloroform. The heart's action is always weak, and often slow and irregular, so that pulse and respiration seem to fail simultaneously when danger appears under chloroform; the fact that artificial respiration applied without delay is usually successful in restoring the patient proves that in these cases the respiratory centre is more deeply poisoned than the heart muscle. Pure chloroform should never, when possibly avoidable, be given to such patients, and the greatest vigilance and care are necessary when administering mixtures.

2. Young persons, more often males, often largely and loosely built, who show on examination: (*a*) some enlargement of the thyroid and fulness of the episternal notch; (*b*) a palpable or percussible enlargement of the spleen; (*c*) *an abnormally slow and inexcitable pulse*, and this in spite of the fact that the patient may be in a miserably anxious and apprehensive state on account of the imminence of the operation. With this there may be, but not constantly, dilatation of the heart. The face is anæmic and rather vacuous, and the pallor may be masked by some degree of cyanosis. These are the cases, in my opinion, to which the name "Status Lymphaticus" should be restricted. The behaviour of these patients under anæsthetics other than chloroform is interesting and suggestive collateral. For instance, nitrous oxide is the most frequently used of all anæsthetics in this country, and the users of this gas can, with little trouble, supply a mass of clinical material of the greatest value. In my experience (15 cases under all anæsthetics) the patient who is only slightly "lymphatic," presenting no signs beyond some lividity of the hands and slight sluggishness of the pulse, requires much more than the normal volume (8 to 12 gallons) of N_2O to "get him over," though, once unconscious, the anæsthesia is sometimes profound and lasting. Such a patient may require as much as 20 gallons of N_2O, especially in warm damp weather. Again, a patient who presents all the signs of lymphatism in a well-marked degree may be totally insusceptible to the narcotising properties of N_2O. He may inhale 30 or 40 gallons without admixture of air for even three minutes and show no result whatever beyond slight dizziness and profuse perspiration. These patients, I believe, always show some abnormality of reaction to nitrous oxide, they *may* show danger signs under chloroform-ether mixtures, and under pure chloroform they almost certainly *will* give trouble. Their reaction to ether does not seem to differ greatly, if at all, from the normal, though Heusler reports a death *after* ether and much loss of blood.

3. *Young parturient women.*—No clinical observation has ever been so mistaken as that which stated that pregnancy conferred immunity from the poisonous effects of chloroform. There are here more factors than one tending to produce too easily an overdose of chloroform vapour (the favourite anæsthetic under these circumstances). There is the diminished "vital capacity" due to encroachment upon the diaphragmatic portion of the thorax, there is the increased carrying capacity of the red blood corpuscles, there is the physical exhaustion produced by prolonged pain and muscular activity, and, hand in hand with this, there is toxæmia from over-metabolism plus fœtal metabolism. It is thus not surprising that artificial respiration is fairly commonly called for, and nothing else is necessary, because the heart is stronger than normal, and it is respiration which undoubtedly fails first.

It is only because the subject is one of general interest at the present time that I do not reserve the matter for the collection of further material.

I am, Sir, yours faithfully,

DONALD J. MUNRO, B.S., M.B. Lond.,
Anæsthetist to the Metropolitan Ear, &c., Hospital.
Welbeck-street, W., Nov. 6th, 1909.

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Probably Dr. Chalmers Watson may be able to explain the paradox. The only explanation I have to offer as to why a

diet approximating to a purin-free diet, and a converse form of diet such as the exclusive meat diet, are each capable of producing good results in gout, is that both, if carefully regulated to the digestive capacity of the individual, tend to eliminate—as may be proved by periodical examination of the urine and fæces—the chief causative factor, viz., auto-toxæmia.

I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 8th, 1909. ERNEST YOUNG.

ENTERICIN IN THE TREATMENT OF ENTERIC FEVER.

To the Editor of THE LANCET.

SIR,—A large number of clinicians will be interested in your annotation of last week describing the results obtained by Mr. John Maberly of Cape Colony with a drug prepared from Monsonia biflora in the treatment of enteric fever, and it is to be hoped that this preparation will be given a fair trial in this country. At the same time I think a protest is needed against the name "entericin" which has been given to its active principle. The analogy between that name and such words as "tuberculin" and "mallein" is so obvious that to many the word "entericin" will connote a vaccine made from the typhoid bacillus, and not a vegetable compound. Surely "monsonin" would be a name in strict accordance with pharmacological precedent, and would obviate the confusion likely to arise from the present title. Uniformity in scientific nomenclature is always desirable.

I am, Sir, yours faithfully,

Nov. 9th, 1909. VERBUM SAP.

MALARIAL FEVERS IN INDIA.

THE CONFERENCE APPOINTED BY THE GOVERNMENT OF INDIA.

(FROM A SPECIAL CORRESPONDENT.)

The Opening Address by H. E. The Viceroy.

THE conference appointed by the Government of India on the prevalence and prevention of malarial fevers in India held its first meeting at Viceregal Lodge, Simla, on Oct. 12th. There were present, besides the members and delegates representing the various presidencies already communicated to you, Sir Louis Dane (Lieutenant-Governor of the Punjab), Sir Herbert Risley (officiating home member of the Viceroy's Council), and Sir Harold Stuart (Home Secretary). The meeting was opened by His Excellency Lord Minto, Viceroy and Governor-General of India, who, after welcoming the delegates, gave a most interesting address in which he impressed on the conference the vast importance of the matter they had been called together to discuss. He referred to the fact that malarial fevers ordinarily claim 1,000,000 deaths in India annually, and in exceptional seasons they have risen to 2,000,000. There were also the cases of those who contract the disease but do not die, and the ratio of these has been placed at 133 cases of fever to 1 death. It was appalling to think of the suffering and economic loss that such conditions imply, not only direct and immediate loss by the death and sickness of adults, but potential loss in the case of children. The chief problem before the conference would be to discover by what means this widespread suffering could be preventible. His Excellency next passed in review the work of the French army surgeon Laveran in 1880, the brilliant suggestions of Sir Patrick Manson in 1894, and the discovery by Major Ronald Ross of the Indian Medical Service in 1897, all connected with the life-history of the malarial parasites. The question of the possibility to exterminate a particular kind of mosquito from malarious localities confronts us, he said, with another problem. The answer, Lord Minto ventured to think, rested rather with the administrator than with the doctor and man of science. He was afraid, however, that he had not the hardihood to enter into the controversial atmosphere which surrounded the question. He left it to the conference to decide to what extent the malarial mosquito had been practically vanquished in the past or can be utterly defeated in the future. Much must depend upon the development of sanitation, upon carefully considered organisation, and last, but not least, upon financial possibilities. But however that may be, while readily admitting the value of the great discoveries to which he had referred, we are mercifully in our struggle with malarial fevers not merely confined to the direction of an anti-mosquito campaign. He referred to a prophylactic administered upon systematic and well-thought-out lines, and quoted Professor W. Osler's results in Canada, the marked successes on the Panama Canal, and the distribution of quinine in the shape of comfits and chocolates in the malarious districts of Italy. Colonel Braide's satisfactory results due to prophylactic treatment in the prisons of the Punjab[1] were also enumerated. The conference had before it two important facts, Major Ross's discovery of the actual cause of malaria and the evidence which Lord Minto thought they may assume to be incontrovertible that where quinine can be systematically administered as a prophylactic a very general immunity from malaria will result. It would rest with the conference to decide by what means the knowledge of these two great facts may best be utilised. He only attempted to outline the general conditions of a problem of imperial magnitude inasmuch as it affected the health and happiness of a great country, the successful solution of which problem must depend upon the united efforts of the administrators and the varied interests which the members of the conference were assembled to represent. It was his earnest hope that the results of the deliberations of the conference may be the inauguration of a campaign against what we now know to be a preventible disease, and which campaign would confer a great boon upon the people of India, and although the campaign must of necessity be long and hard fought he opened the conference in the firm belief that it would eventually be crowned with success.

Lieutenant-Colonel J. T. W. Leslie, M.B., C.I.E., I.M.S., then delivered an introductory address, sketching the positions of the problems which would be placed before the conference.

(To be continued.)

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Hospital Sunday.

ON Oct. 31st collections were made at nearly all the churches and chapels in the city and neighbourhood in aid of medical charities. 17 charities participate in the proceeds. 283,000 cases were treated by them last year, as compared with 271,000 in the previous year. The increased expenditure necessitated by this larger number of cases, and the fear that the depression in trade and the numerous heavy calls that have been made during the year in support of the various philanthropic agencies might result in diminished collections, caused a special effort to be made by the organisers this year. The full returns have not yet been made, but it appears that last year's total of £5119 will be exceeded.

Health of Staffordshire.

Dr. G. Reid, the medical officer of Staffordshire, has just issued his twentieth annual report. A question of great importance to the inhabitants of the districts through which the River Tame flows is the condition of the watercourse. There has been a pronounced improvement in recent years through the efforts made by the Birmingham, Tame, and Rea drainage board in extending the area of the biological filters. Infantile mortality in the county still continues to decline, but there are five urban districts in which the mortality is more than 170 per 1000 births. Tunstall stands at the top of the list, with 209 deaths; Darlaston is second, with 200; Burslem and Longton have each 183; and Fenton has 179. Strong comments are made concerning the sanitation of Darlaston. It is one of the worst privy-midden towns, and in regard to the Notification of Births Act, Dr. Reid says that unless the district council determines to adopt the Act it will become a question whether the county council should not bring the Act into operation. Vaccination is very inefficiently performed in many districts of the county, and it is evident that the facility offered for obtaining exemption certificates has already had serious consequences as regards the number of children protected against small-pox.

The University.

The following appointments to the staff have been made: Mr. J. Sholto Cameron Douglas, M.A., M.B. Oxon., lecturer

[1] THE LANCET, May 29th, 1909, p. 1568.

THE LANCET OFFICES

423 STRAND, LONDON, W.C.

Reduction in the Price of The Lancet

The Manager begs to announce that with the New Year the price of The Lancet will be reduced to 6d. The Annual Subscription will also be reduced—to One Guinea for the United Kingdom and for Medical Subordinates in India whose rate of pay, including allowances, is less than Rs. 50 per month; and to 25s. for the Colonies and Abroad.*

For some time past it has been felt that the price of The Lancet, which has remained at 7d. for the past fifty years, is not in accordance with the progress of modern newspaper development; but sentimental objections to any change on the part of the late esteemed Proprietor of The Lancet, who lived to an advanced age, stood in the way of making the reductions at an earlier date.

In all other respects The Lancet will remain exactly as before, save in those features where it can

* Subordinates claiming this rate can obtain from their Commissioned Officer a Certificate stating their rate of pay and allowances, and can forward it to The Lancet Offices with a request to be placed on the Subscribers' List.

be improved. It will continue to be a perfectly independent Journal, representing no sort of clique or particular school of thought, and serving no private aims whatever; for the interests of The Lancet must ever be identified with and be inseparable from those of the great body of the practitioners of medicine throughout the World.

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in pathology and bacteriology; and Mr. Leonard Doncaster, M.A., special lecturer in heredity and variation.

Hospital Appointments.

At Queen's Hospital the post of honorary physician, rendered vacant by the tragic death of Dr. A. Foxwell, has been filled by the election of Mr. Joseph George Emanuel, M.D. Lond., M.R.C.P. Lond., physician to out-patients at the Queen's Hospital and Midland Free Hospital for Sick Children. Dr. Emanuel formerly held the posts of pathologist to the General Hospital and resident medical officer to the Hospital for Diseases of the Chest, Victoria-park, London. At the General Hospital Dr. J. Sholto Cameron Douglas has been elected to the post of visiting pathologist rendered vacant by the resignation of Dr. James Miller, who has been appointed extra-mural lecturer on pathology at Edinburgh. The increase in the number of operations at the General Hospital has necessitated the services of a third anæsthetist, and Mr. R. H. Rollinson-Whitaker, F.R.C.S. Eng., has been elected to the position.

Midland Medical Society.

The first meeting of the session was held on Oct. 28th. Sir Lauder Brunton delivered an address on Vascular Changes in Later Life. Mr. Frank Marsh, the President, occupied the chair, and there was a very large attendance of members.

Nov. 8th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Edinburgh Medico-Chirurgical Society.

THE first meeting of the new session of this society was held on Nov. 3rd. Perhaps the most interesting part of the proceedings was the expression by the President of the society's appreciation of the faithful and successful manner in which Dr. William Craig had acted as editor of the society's Transactions for 28 years, a labour which he was now relinquishing and passing on into other hands. It is proposed to present Dr. Craig with a tangible mark of the society's gratitude for the way in which he has worked for the society. Dr. James Ritchie, who has occupied the Presidential chair for the last two sessions, took for the theme of his valedictory address the importance of the constitutional element in diseases caused by bacteria, and referred to various interesting illustrations taken from cases in his family practice. Dr. Byrom Bramwell was then called to the chair and was warmly welcomed by the members present.

Lord Hugh Cecil at the University of Edinburgh.

The Associated Societies of Edinburgh University had their session opened on Nov. 4th by an address delivered by Lord Hugh Cecil, the Honorary President of the societies. The address was delivered in the McEwan Hall, which was well filled, and the chair was occupied by Principal Sir William Turner, K.C.B., in the unavoidable absence of the Right Honourable A. J. Balfour, Chancellor of the University. Lord Hugh Cecil's theme was "Liberty and Authority." The address was listened to with great attention, and evidently appreciatively followed by the audience in spite of the closeness of the reasoning and of the fact that he spoke for an hour and a quarter with only notes to help him. The address was a plea for liberty and individualism, and were any criticism to be passed upon it here it would be that the converse could be presented perhaps with equal cogency. After the delivery of the address the lecturer was entertained to supper in the University Union.

The Administrative Treatment of Pulmonary Tuberculosis in Glasgow.

In reference to your annotation on this subject last week, I may point out that it has been decided to increase the number of tuberculosis dispensaries, and in connexion with this it is satisfactory to note that the parish council has intimated its willingness to assist the public health authorities in this direction by permitting the use of the parish dispensaries as district tuberculosis departments on certain days of the week. This, of course, is as it should be, and will make for economy.

Faculty of Physicians and Surgeons of Glasgow.

At a meeting of the Fellows of the Faculty held in the Faculty Hall last week the office-bearers were appointed for the ensuing year. Dr. D. N. Knox is the new president, while Dr. James A. Adams has been elected visitor.

Sequel to the Colliery Doctor Question in Fife.

Another conference between representatives of the Fife Coal Company and of the Fife and Kinross Miners' Association in regard to the dispute as to medical attendance was held last week. An agreement was drawn up which will at least temporarily remove the existing deadlock. It has been agreed that each man employed at the Fife Coal Company's collieries in the Kelty district shall nominate on the back of his pay-ticket, on a day to be afterwards named, the medical man whose services he desires for the next quarter, and a list of the names of the men will be sent to the practitioner who has been nominated by them. Quarterly each man will hereafter nominate on the back of his pay-ticket the medical man whose services he desires for the ensuing quarter. Pending a final agreement the 6*d.* per fortnight deducted for medicine and medical attendance from the date of expiry of the notices already lodged shall be retained by the company, to be divided later among the medical practitioners according to the nominations of the men. Although these terms have practically been accepted by both parties to the dispute it is believed that the question of the arrangement between the coal companies and the men in regard to the choice of a colliery doctor will now be raised all over the country.

Typhus Fever in Dundee.

There has been an outbreak of typhus fever in North George-street, Dundee, traced to a certain family, who are supposed to have contracted infection while attending the wake on a man who was said to have died from pneumonia. Everything is being done by the authorities that is possible to prevent further cases.

University College, Dundee.

The report of the Council of the College is satisfactory, this year showing the record in numbers, 128 men and 112 women. Of these 56 were medical students. The financial side is also satisfactory, total ordinary income being £12,902, expenditure £12,595, leaving an apparent surplus of £307. The system by which each professor participated in the emoluments from the class fees has now, with the help of the Carnegie Trust, been abolished. An appeal for assistance in further endowing several of the classes and for founding others is made by the committee.

An Infirmary Inquiry at Inverness.

At a general meeting of the managers of the Northern Infirmary at Inverness held last week the clerk read the report by the directors on the case of a well-known surgeon in Bristol, who had been a patient in the infirmary after a bicycle accident in which he had fractured his leg. A charge was made that the patient had been neglected by the medical man who sent him to the infirmary, who happened at the same time to be on the staff of the infirmary. A special subcommittee of the directors took evidence and made a full investigation into the circumstances. After considering the whole matter the directors submitted a lengthy report, in which they expressed regret that the case had been left to be treated by the house surgeon. So far as regards the initial treatment and the setting of the leg, and the fact that the medical man who sent the patient in did not go back to see him in the infirmary until after the case had been taken out of his hands, they considered that each case should have the continuous attention of the member of the staff under whose charge it was put until the patient was discharged. The house surgeon, they also considered, should have reported the state of matters to the surgeon in charge before calling in the assistance of another member of the staff. They added that the whole circumstances showed that the relations between certain members of the staff were strained, and that there was a want of harmony which should not occur in such an institution. The only satisfactory element in the case seemed to be that the patient did not suffer any bad effects in consequence of what took place.

Nov. 9th.

DONATIONS AND BEQUESTS.—The Secretary of the Bristol General Hospital has been advised that the sum of £1000 has been given to the hospital funds by an anonymous donor. This gift is peculiarly welcome at the present time when the ordinary funds of the hospital show a deficit to which they are not accustomed.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Cleansing of Dublin Streets: Financial Difficulty.

A SERIOUS sanitary situation has just developed with regard to cleansing the streets of our metropolis—a city never quite proverbial for general tidiness or hygienic propriety. The fact is all the more deplorable inasmuch as every discriminating observer must admit that real strides forward have been made of recent years; while the general diffusion of hygienic education and the great amount of attention given to the housing of the poor had led some of the more sanguine to hope that in the course of another couple of decades our conspicuous mortality would be cut down to an average level. But the effect of a recent decision of the municipal council has been the production of a report by the cleansing committee in which an explanation is offered to the Lord Mayor, aldermen, and burgesses of the city of the consequent necessity for a reduction of its staff. The movement, which is a downward one, has been in progress for some months. In the three months ending June 30th of this year the committee had stated that a reduction of its estimates by a further £3000 had placed the department in a very serious position, but that they hoped to be able to effect a saving of £2050 by reducing the street staff by 20 men, by dispensing with some temporary hands, by taking off the £300 allowed for men's clothes, and by effecting small economies in other ways. These paragraphs were deleted by the council, and further correspondence with the estates and finance committee led to an expression of opinion of the latter body that after the rates had been struck on the basis of certain figures approved by the council, a subsequent resolution, which would have the effect of involving an expenditure not provided for at the time of consideration of the estimates, could not possibly be complied with. The law agent also wrote to the same effect. These communications caused the cleansing committee to hold a special meeting, the result being that further discussion showed that the anticipated reduction of expenditure was greater than could be carried out. The council had resolved that the grant of clothes should be made to the men this year, and also that full pay should be given them during the first month of any illness; both items of proposed curtailment. But as no corresponding provision had been made when considering the estimates, the cleansing committee has definitely stated that it has no option but, having previously stopped all special work, to dismiss another batch of 57 men. In addition to the deplorable increase of unemployment which must result is the fact that the present reduced staff is not able properly to cope with the regular work of cleansing the streets—a fact which, unhappily, seems to be corroborated by the condition of every metropolitan thoroughfare at the present date. The committee has pointed out that the further reduction of its employees means that at the most important time of the year the work of cleansing the streets in the form of any general system must be abandoned, and it doubts whether it can even keep up the regular clearance of the dust-bins. It is very much indeed to be hoped that, in the interest of public health and of public taste, an early solution of this financial crux may be arrived at.

The Dublin Corporation and the Sale of Poisons.

At last week's meeting of the Dublin municipal council three members of the Pharmaceutical Society attended on behalf of that body to ask the council not to issue licences for the sale of poisons to seedsmen and other general tradesmen. The spokesman stated that there were 1500 persons on the register of the Pharmaceutical Society for Ireland who were legally qualified to keep open shop for the sale of poisons, and of that number 100 were carrying on business within the boundary of the city of Dublin, and that while a number of these were dispensing chemists pure and simple, a number of others carried on business as agricultural and horticultural druggists. It was submitted that the Pharmaceutical Acts had been passed solely in the interests of the public, because it was important that great care should be used in the handling of poisons, which should be carried out only by persons qualified for that purpose, as the pharmaceutical chemist is, having been obliged to take out prescribed courses of lectures, to pass through a regulated course of study, and to undergo a searching examination. The municipal council, the Pharmaceutical Society argued, had been asked to grant licences to persons who had not shown that they were educated or qualified to handle those very dangerous substances in order that the public might obtain what they wanted in one "general" shop; but the society hoped and believed that the council would not permit such proceedings. The report of the public health committee on the subject was afterwards submitted to the meeting, and a motion was carried delegating the matter to the public health committee with instructions not to grant licences to other than pharmaceutical chemists.

Memorial to the late Professor Daniel John Cunningham.

On Nov. 3rd a meeting was held in the Medical School of Trinity College, Dublin, to take steps to establish a memorial to Professor Cunningham. The Provost occupied the chair, and among those who spoke were Professor James Little, the Dean of St. Patrick's, Sir Charles Ball, Dr. A. C. O'Sullivan, the Hon. Mr. Justice Boyd, and Mr. Edward J. Gwynn. It was decided that a memorial medal and prize in anatomy should be founded and that a portrait in bronze should be placed in the school. It was further resolved that the friends and former pupils of Professor Cunningham be invited to subscribe—subscriptions not to exceed £2 2*s*. The following were appointed an executive committee to carry out the wishes of the meeting: Professor James Little, Sir Charles Ball, the Hon. Mr. Justice Boyd, the Right Hon. Jonathan Hogg, Dr. A. C. O'Sullivan, Mr. E. J. Gwynn, Professor A. F. Dixon, Professor C. J. Patten, Dr. T. G. Moorhead, and Dr. R. A. Stoney. Friends and former pupils of Professor Cunningham who desire to join in the movement are requested to communicate with one of these.

Ulster Medical Society.

The opening meeting of the present winter session of the Ulster Medical Society was held in the Medical Institute, Belfast, on Nov. 4th, when the new President, Dr. J. J. Austin, delivered an interesting inaugural address on "Life Insurance," in which he discussed very fully and in a most valuable way such questions as the selection of an office, the special points to be attended to by medical men in the examination of those proposing to insure, the value or the reverse of personal history, and the comparative importance to be attached to signs of cardiac, renal, and pulmonary disease. Sir John Byers having spoken of the address as one of exceptional merit, a vote of thanks to the President was passed with enthusiasm by a large audience. The annual dinner of the Society will be held on Thursday next, Nov. 18th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Dried Blood Serum as a Hæmostatic.

THE therapeutic possibilities of the dried blood serum of the horse formed the subject of a communication made by M. Robert and M. Chody at a meeting of the Therapeutical Society held recently. They said that although normal blood serum was known to possess hæmostatic and cicatrising properties its use was limited by the difficulty of obtaining a prompt supply of it in a fresh and aseptic state. They had, however, found a means of facilitating its therapeutic application by using the serum of horse's blood collected with aseptic precautions and immediately dried in a vacuum at a pressure of about two millimetres of mercury and a temperature approaching 0° C. Their experience and that of other observers who have tried this dried serum showed that it retained all its properties both in the dry state and after having been redissolved in water. Externally, it was useful in various profuse hæmorrhages, in epistaxis, and in hæmorrhage due to such causes as extraction of teeth, operations on the tonsils, removal of adenoid vegetations or hæmorrhoidal protrusions, rupture of the hymen, &c. Internally, the dried serum might be given in doses of one or two grammes daily in cachets to patients suffering from

severe anæmia, hæmophilia, and other dyscrasic conditions attended with hæmorrhage.

Obstetrical Society of France.

A meeting of the Obstetrical Society of France was held in Paris last month. The principal subjects of discussion were as follows: Difference in the Temperature of the Lower Limbs (by M. Delestre); Results of Cultivations from the Blood in a series of dangerous puerperal infections (by M. Guéniot, with remarks by M. Cathala); Cyst of the Ovary in a parturient woman (by M. Lapage, with remarks by M. Pinard); a case of Myomectomy during pregnancy (by M. Corvelaire); Treatment of Aseptic Wounds by the lactic acid bacillus (by M. Jeannin); Retention of the Placenta and criminal abortion (by M. Boissard); Hysterectomy for Peritonitis following criminal manipulations in a non-pregnant woman (by M. Brindeau and M. Chirié); Asphyxia by Coal Gas of a woman at term, with recovery of the mother but death of the fœtus (by M. Tissier); and Spontaneous Expulsion of a small uterine fibroma immediately after delivery (by M. Lacasse). Malignant tumours of the placenta formed the subject of a report presented by M. Brindeau and M. Nattan-Larrier, and there was a discussion in which M. Keifer, M. Brouha, M. Durante, and M. Paquy took part.

International Congress of Physiotherapy.

The Third International Congress of Physiotherapy will be held in Paris from March 29th to April 2nd, 1910, under the presidency of Professor Landouzy, Dean of the Faculty of Medicine. The work of the congress will be conducted in the seven sections as follows: (1) Kinesitherapy; (2) Hydrotherapy and Thermotherapy; (3) Climatotherapy; (4) Electrotherapy; (5) Radiotherapy, Radiumtherapy, and Phototherapy; (6) Cryotherapy; and (7) Dietetics. Further information may be obtained from the Secretary, Dr. Vaquez, 27, Rue du Général Foy, Paris.

Comparative Frequency of Tuberculosis in the Offspring of Tuberculous and Non-tuberculous Parents.

At a meeting of the Société Médicale des Hôpitaux, held on Oct. 22nd, M. Pissavy communicated some statistics showing, on the one hand, that among 1428 children born to 469 non-tuberculous married couples, 123—i.e., 8 per cent.—became tuberculous; and, on the other hand, that among 292 children born to 100 married couples, in each of whom at least one of the parents was tuberculous, 93—i.e., 31 per cent.—became tuberculous. He also said that it seemed to be proved that in respect of the frequency of the transmission of tuberculosis there was no difference between town and country children.

Effects of the Subcutaneous Injection of Concentrated Tuberculin in Non-Tuberculous Children.

Subcutaneous injections of tuberculin in a concentration of 1 in 100 have been given by M. Mantoux to children who did not react to the ordinary dilute solution of 1 in 5000. The greater number of the children showed redness and sometimes a suspicion of infiltration at the place of injection; these symptoms, however, attained their maximum at the end of 24 hours and disappeared at the end of 48 hours. This was followed by an intradermal reaction which always developed on the second day. The injection of concentrated tuberculin, therefore, produced in non-tuberculous persons an early irritative reaction which was sharply distinguished from the late intradermal reaction. In the former case the tuberculin behaved as an ordinary irritant, whereas in the latter case it had a specific action. M. Mantoux gave details of his observations on Oct. 23rd at a meeting of the Biological Society.

Nov. 9th.

GUARDIANS AND TUBERCULOSIS.—At a recent meeting of the East Westmorland board of guardians at Appleby it was decided to renew the subscription of £60 to the Westmorland Sanatorium for Consumptives in order that the board might have the right to one free bed. The motion to this effect was only carried after some discussion, as three years ago the board adopted a resolution that the subscription to the sanatorium which had hitherto been paid should be discontinued.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Enforcement of the Vaccination Law.

THE Ober Verwaltungs-Gericht (High Court for administrative actions) has lately decided that the authorities have the right to compel a father (by the use of force if necessary) to have his child vaccinated. A man having been asked by the local police to obtain a certificate showing that his daughter had been vaccinated, failed to comply with the request, and was therefore fined by the police magistrate. The police then told him that they would be obliged to take the girl to the medical officer of health for vaccination. The father thereupon brought an action against the police, pleading that the question was settled by the fact of him paying his fine, and it was further argued in his behalf that the vaccination law, while rendering a father liable to a fine in the event of contravention, did not entitle the police to vaccinate a child by force. The court, however, decided that the action of the police was in accordance with the law, admitting that children might be lawfully exempted from vaccination for reasons of health, but not because the father happened to be opposed to vaccination. It would be at variance with the spirit of the law to hold that by once paying a fine a man may be allowed to obtain exemption of his children from vaccination, and in that way eventually to create risks for their health and that of his fellow-citizens.

Treatment of Erysipelas and Frostbite.

Professor Binz of Bonn, writing to the *Berliner Klinische Wochenschrift* of Nov. 1st, reports that 15 cases of erysipelas have been successfully treated by an ointment containing 15 per cent. of chlorinated lime ($CaOCl_2$), the result being that the fever disappeared on an average after two or three days, as compared with nine days under the methods formerly employed—namely, compresses charged with carbolic acid, corrosive sublimate, or alcohol. No complications happened and no death occurred. Professor Binz on a former occasion had recommended the substance in question for the treatment of frostbite. He states that his method has been applied in a great many cases, in only one of which were there any undesirable symptoms produced. In this case the ointment after having been applied for five days gave rise to a bullous exanthem which spread from the hands to the skin of the face and the femur. It is therefore advisable, in the first instance, to employ an ointment of only 5 per cent. strength and only over a small area without ulcerations. The irritated spots should then be washed with a solution of sodium thiosulphate of 1 per cent. strength.

Examination of Tuberculous Sputum.

The Hygienic Laboratory of the city of Berlin has for some time examined free of charge samples of sputum sent to it by Berlin medical men. The town council, however, recently decided that the laboratory should charge for every examination 2 marks 50 pfennig, of which 1 mark 25 pfennig were to be paid previously to the examination. In explanation of this change it was pointed out that well-to-do persons could have their sputum examined by private laboratories, whilst for club patients and those of the necessitous classes the examination was undertaken by the anti-tuberculous dispensaries. The laboratory was also ordered to destroy the sputum in the case of the fee not being paid within three days. The decision of the council was based on the alleged great expense of examination of sputum made indiscriminately in every instance. This new departure caused a unanimous protest both in the ordinary newspapers and in the medical press. It was said that the prevention of tuberculosis was a matter of public welfare just as the prevention of fire was, and that the council might with as much reason abolish the fire brigade to save the expenses. The State laboratories are much more liberal than the municipal laboratory because they have examined and continue to examine every sample of sputum sent to them by a medical practitioner. The *Deutsche Medizinische Wochenschrift* reminds its readers that in 1895 the Mayor of Berlin declined to make arrangements for bacteriological examination in suspected cases of diphtheria because it was not yet proved that Löffler's bacillus was really the only cause of

diphtheria. Universal disapproval has fortunately induced the council to withdraw its decision on the pretext that it was only provisional, but the narrow behaviour of the council has confirmed the general opinion that the appointment of a competent and salaried chief medical officer to the city of Berlin is highly necessary. At the present time medical questions coming before the council are usually handed over to one member who happens to be the only medical man having a seat on it, and who has interested himself in this work for many years. This system, however, is not without disadvantages nowadays when hygienic problems are so numerous and important.

Repeated Prosecution and Acquittal of an Unqualified Practitioner.

The repression of quackery is rather difficult in Germany. Unqualified practice itself is not punishable when no recognised medical title is assumed, and actions against such practitioners can be brought only on the ground of imposture or neglect of patients. The medical societies and the police do as much as they can to restrain quackery, but unfortunately their endeavours are hindered by the law courts where verdicts of "not guilty" are often given in most flagrant cases. An instance of this kind happened lately at Crefeld in Rhenish Prussia, a large industrial town, famous for its silk factories. In the neighbourhood of that town there lived a clergyman who has for many years conducted an unqualified practice on an extremely large scale, the annual number of new patients being estimated at about 15,000, who came not only from Germany but also from the neighbouring countries of Holland and Belgium. He does not charge fees but leaves it to the patients to pay what they think fit to the beadle who acts as his assistant and secretary. One of his favourite prescriptions was to put the patient into a clay-pit in the neighbourhood of his residence so that the people gave him the nickname of "Lehm-Pastor"—i.e., clay-priest. His diagnosis was only made by an inspection of the eyes of the patient, his theory being that he was able to see from certain lines or spots in the iris which organ was affected. He has been prosecuted 13 times but has always been found not guilty. Recently he was again charged with having caused the death of a patient by neglect. He had ordered a child suffering from appendicitis to be put into the clay-pit, the result being that death ensued from peritonitis. Before the court the hospital physicians and surgeons of Crefeld gave evidence that the clergyman's theory was absolute nonsense; the court thereupon decided that the defendant should prove in 20 cases at the Crefeld Hospital whether he was able to make a diagnosis by inspection of a patient's iris. The experiment failed utterly, for in no instance was a correct diagnosis made, and in one case the clergyman even overlooked the fact that the patient was blind. A verdict of "guilty" was generally expected, but to the great astonishment of the audience he was found "not guilty." An enormous crowd waited outside the court, and when the defendant appeared he was greeted with general applause and brought in triumph to the railway station. Far from making an end of the clay-priest's medical practice, the prosecution will, on the contrary, increase his renown. It may be seen from the foregoing that there is not much prospect of unqualified practice becoming extinct in the present state of the law.

Nov. 8th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The New Surgical Clinic.

THE surgical clinic which was erected in 1875 and has been regarded by foreigners as one of the best equipped institutions of its kind on the continent, has of late years proved to be inadequate to present-day requirements. A new clinic has therefore been erected according to the plans of the architects, Mr. Korb and Mr. Giergl, acting on the instructions of Professor Dollinger. The building stands on the site of the old Botanical Gardens, and the surgical clinic took possession of its new quarters in October of the present year. The clinic consists of a basement, a raised ground floor, and two upper storeys, over which in the central part of the building there is a third storey, where the sleeping apartments of the nurses are located. For the distribution of food from the central kitchen there is an underground tunnel having two special distributing rooms located at each end of the basement. From here the food is carried by lifts to the first- and second-floor dining rooms, while the bed-linen and dressing material are transported by two special lifts located in the right and left wings of the buildings. The waste dressing material is transported in receptacles specially made for this purpose to the stoves, which are located in the basement, where there are also the following departments: (1) a store room for dressing material and plaster bandages; (2) sterilisers for dressing material; (3) a stove for burning cotton and other rubbish; (4) an orthopædic gymnasium; (5) an orthopædic workshop; (6) a dark room, which communicates by a spiral staircase with the photographic room situated just above it; (7) a room for the cages of small animals used for experimental purposes with staircase leading into the laboratory above; and (8) a mortuary, in which the bodies await removal to the pathological institute. The out-patient department is in the left wing on the ground floor, and here is also the room of the surgeon on duty, who affords first aid in cases of emergency. Running along the whole length of the consulting-rooms there is a corridor, which is widened at each end, where there are chairs and benches for waiting patients. Into this corridor the consulting-rooms open, all of which are provided with dressing-rooms for males and for females. Out-patients attend in one or other of the following sections: (1) a section in which wounds, abscesses, and superficial inflammations are treated, the medical students being admitted in groups of 10 or 12, changing fortnightly; (2) a section for diseases of joints and bones and orthopædics, in which the students are admitted in groups of six; (3) a section for urological cases; and (4) a section for laryngeal and nasal cases. In these rooms minor surgical operations are performed, and after-treatment is given to patients discharged from the clinic but not entirely recovered. At one end of the corridor are the X ray laboratory and the photographic room, with the room for laryngeal and nasal cases between them. The separation of the X ray room from the photographic room is made purposely in order to prevent the sensitised plates from suffering under the action of the X rays. In the right wing of the ground floor there are: (1) the histological, chemical, bacteriological, and experimental laboratories; (2) the museum; and (3) the library and reading-room, together with the medical officers' dining-room and other apartments for their use. In the central part of the high ground floor, close to the main entrance on the left is the doorkeeper's lodge, and on the right a large lift in which there is room for one bed and three persons accompanying the patient. There is a wide staircase leading into the vestibule of the high ground floor. Into this vestibule the waiting-room, study, and dressing-room of the professor open. Into the left half of the vestibule a small lecture room opens for lectures delivered by *privat-docenten* and for certain courses of instruction. Opposite the main entrance of the large vestibule is the entrance to the large amphitheatre-like lecture hall, on both sides of which are waiting-rooms for male and female patients. Next to it there are the sterilising room and the room in which the patients are prepared for operation. The main lecture hall is lighted by a large window facing north. The space provided for the lecturer is so planned that operations can also be performed in it, and around this space there are 224 seats arranged in amphitheatre fashion. This lecture hall is connected with the right and left wings of the clinic by a covered glass corridor. The students come into the lecture hall from the first floor through a cloak-room, where there are lavatories for ladies and gentlemen. The male patients are accommodated in four large wards each containing 11 beds, four small wards each containing five beds, and four wards containing two beds. On the east side of the large wards there is a covered balcony, used as a recreation room, called the loggia. The left half of the floor is for septic and the right for aseptic patients, and in each wing there is a special room devoted to treatment and bandaging, and one dining-room, serving also as a recreation room for patients. The arrangement of the second storey corresponds with that of the first floor and contains the wards and rooms for female patients. In the northern part of the right wing is the aseptic operating theatre and on the left wing the operating theatre for septic cases. These theatres are arranged on the following plan:

(1) bathroom for patients; (2) preparatory room for patients; (3) instrumentarium; (4) sterilising room; (5) washing room for medical officers; and (6) operating theatre. All the floors are paved with glazed tiles and the walls are overlaid with white enamelled tiles. The sterilisers for instruments and dressing material are built in the wall between the operating theatre and sterilising room, and are accessible from both sides. On the flat roof there are terraces for the use of the patients; as a protection against the heat of the sun there are large roll-up awnings. These terraces can be utilised for light baths and sun baths. The clinic still needs a building for the isolation of patients suffering from severe infectious diseases, and steps have already been taken towards supplying this deficiency.

Nov. 7th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Institute of Tropical Diseases.

THE Registrar of the University of Sydney reports that an appointment has been made in connexion with the Australian Institute for Tropical Diseases. The headquarters of the institution will be at Townsville, Queensland, and the first director will be Dr. Anton Breinl. Dr. Breinl is a graduate of the University of Prague, where he occupied for some time a position as demonstrator of pathological anatomy. Latterly he has been connected with the Liverpool School of Tropical Medicine.

Tuberculosis in New South Wales.

The Government statistician has issued a pamphlet analysing the mortality from tuberculous diseases in New South Wales. A comparison of death-rates for different types shows that pulmonary tubercle provides the great bulk of mortality. A table is given setting forth the salvage of life possible had the present-day rates prevailed through the last 33 years:—

	Actual deaths.	Salvage by present rates.	Salvage per cent. of actual.
Males—Metropolis	11,504	5122	45
Country	13,826	3159	23
Females—Metropolis	8909	3492	39
Country	8593	1723	20

Clinical Teaching at Sydney.

Medical students at the University of Sydney are in future to have the privilege of attending clinical teaching at the Sydney Hospital as well as at the Royal Prince Alfred Hospital. The latter institution is practically in the University grounds and while the number of students was small answered all requirements, but the school has shown such expansion that extra accommodation is needed. The following lecturers have been appointed at the Sydney Hospital: Clinical medicine, Dr. Sydney Jamieson; clinical surgery, Dr. H. L. Maitland; tutorial medicine, Dr. Hamilton Marshall; and surgery, Mr. B. J. Newmarch.

Telephone Mouthpieces.

An investigation was recently undertaken by Dr. F. Tidswell, director of the Bureau of Microbiology of New South Wales, into the question of the transmission of infection by telephone receivers. He examined 50 receivers and formed the conclusion that these mouthpieces are not a usual harbour for pathogenic germs. Diphtheria and tubercle bacilli were notably absent.

Asylum Pathologist.

The Victorian Government appoints an asylum pathologist under the present Lunacy Act, but the Faculty of Medicine has reported to the University Council that "the salary is not sufficient to induce a competent officer to surrender his whole time, and the duties include the making of post-mortem examinations in these asylums whenever the coroner so directs. In these circumstances a satisfactory result is impossible. Adequate research work is out of the question. The restoration of the duty of making post-mortem examinations to the medical staff of the hospital would greatly promote the scientific work, and full protection would be given patients if the coroner retained power in any particular case to instruct the neuro-pathologist or an outside medical practitioner to make a post-mortem." After consultation with the Inspector-General, the Faculty recommended that a neuro-pathologist should be appointed jointly by the Government and the University Council, to devote his whole time to the work of research and teaching. The salary named was £650 per annum, of which the department would provide £600, and £50 would be added by the University. The officer appointed would act as lecturer in the University.

Defective Teeth.

A partial examination of the teeth of State school-children in Melbourne reveals the fact that the proportion with defective teeth is very much the same as that in other countries. About 95 per cent. required more or less attention. Representations have been made by the Odontological Society as to the necessity of having one or more dental inspectors appointed to visit State schools.

The Keeping of Milk.

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Epidemics in Papua.

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Oct. 4th.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Florence:* Dr. Luigi Siciliano has been recognised as *privat-docent* of Medical Pathology, and Dr. Corsino Andrea Corsini as *privat-docent* of Hygiene and State Medicine.—*Freiburg:* Dr. Wilhelm Trendelenburg, *privat-docent* of Physiology, and Dr. Franz Knoop, *privat docent* of Physiological Chemistry, have been granted the title of Extraordinary Professor.—*Genoa:* Dr. Arturo Morselli has been recognised as *privat-docent* of Psychiatry.—*Göttingen:* The late Professor Runge's chair of Midwifery and Gynæcology not having been filled up, Dr. Richard Birnbaum has been appointed to carry on the duties for the present.—*Kiel:* Professor Franz of Jena has accepted the offer of the late Professor Pfannenstiel's chair, but will not take up the duties until the summer session. They will in the meantime be carried on by Professor Hoehne.—*Philadelphia (Jefferson Medical College):* Dr. George E. Price has been appointed Assistant Professor of Neurology and Psychiatry.—*Vienna:* The charge of the Medical Department of the Polyclinic, vacant by the resignation of Professor von Stoffell, has been given temporarily to Dr. Rudolff Kaufmann, and that of the Second University Gynæcological

diphtheria. Universal disapproval has fortunately induced the council to withdraw its decision on the pretext that it was only provisional, but the narrow behaviour of the council has confirmed the general opinion that the appointment of a competent and salaried chief medical officer to the city of Berlin is highly necessary. At the present time medical questions coming before the council are usually handed over to one member who happens to be the only medical man having a seat on it, and who has interested himself in this work for many years. This system, however, is not without disadvantages nowadays when hygienic problems are so numerous and important.

Repeated Prosecution and Acquittal of an Unqualified Practitioner.

The repression of quackery is rather difficult in Germany. Unqualified practice itself is not punishable when no recognised medical title is assumed, and actions against such practitioners can be brought only on the ground of imposture or neglect of patients. The medical societies and the police do as much as they can to restrain quackery, but unfortunately their endeavours are hindered by the law courts where verdicts of "not guilty" are often given in most flagrant cases. An instance of this kind happened lately at Crefeld in Rhenish Prussia, a large industrial town, famous for its silk factories. In the neighbourhood of that town there lived a clergyman who has for many years conducted an unqualified practice on an extremely large scale, the annual number of new patients being estimated at about 15,000, who came not only from Germany but also from the neighbouring countries of Holland and Belgium. He does not charge fees but leaves it to the patients to pay what they think fit to the beadle who acts as his assistant and secretary. One of his favourite prescriptions was to put the patient into a clay-pit in the neighbourhood of his residence so that the people gave him the nickname of "Lehm-Pastor"—i.e., clay-priest. His diagnosis was only made by an inspection of the eyes of the patient, his theory being that he was able to see from certain lines or spots in the iris which organ was affected. He has been prosecuted 13 times but has always been found not guilty. Recently he was again charged with having caused the death of a patient by neglect. He had ordered a child suffering from appendicitis to be put into the clay-pit, the result being that death ensued from peritonitis. Before the court the hospital physicians and surgeons of Crefeld gave evidence that the clergyman's theory was absolute nonsense; the court thereupon decided that the defendant should prove in 20 cases at the Crefeld Hospital whether he was able to make a diagnosis by inspection of a patient's iris. The experiment failed utterly, for in no instance was a correct diagnosis made, and in one case the clergyman even overlooked the fact that the patient was blind. A verdict of "guilty" was generally expected, but to the great astonishment of the audience he was found "not guilty." An enormous crowd waited outside the court, and when the defendant appeared he was greeted with general applause and brought in triumph to the railway station. Far from making an end of the clay-priest's medical practice, the prosecution will, on the contrary, increase his renown. It may be seen from the foregoing that there is not much prospect of unqualified practice becoming extinct in the present state of the law.

Nov. 8th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The New Surgical Clinic.

THE surgical clinic which was erected in 1875 and has been regarded by foreigners as one of the best equipped institutions of its kind on the continent, has of late years proved to be inadequate to present-day requirements. A new clinic has therefore been erected according to the plans of the architects, Mr. Korb and Mr. Giergl, acting on the instructions of Professor Dollinger. The building stands on the site of the old Botanical Gardens, and the surgical clinic took possession of its new quarters in October of the present year. The clinic consists of a basement, a raised ground floor, and two upper storeys, over which in the central part of the building there is a third storey, where the sleeping apartments of the nurses are located. For the distribution of food from the central kitchen there is an underground tunnel having two special distributing rooms located at each end of the basement. From here the food is carried by lifts to the first- and second-floor dining rooms, while the bed-linen and dressing material are transported by two special lifts located in the right and left wings of the buildings. The waste dressing material is transported in receptacles specially made for this purpose to the stoves, which are located in the basement, where there are also the following departments: (1) a store room for dressing material and plaster bandages; (2) sterilisers for dressing material; (3) a stove for burning cotton and other rubbish; (4) an orthopædic gymnasium; (5) an orthopædic workshop; (6) a dark room, which communicates by a spiral staircase with the photographic room situated just above it; (7) a room for the cages of small animals used for experimental purposes with staircase leading into the laboratory above; and (8) a mortuary, in which the bodies await removal to the pathological institute. The out-patient department is in the left wing on the ground floor, and here is also the room of the surgeon on duty, who affords first aid in cases of emergency. Running along the whole length of the consulting-rooms there is a corridor, which is widened at each end, where there are chairs and benches for waiting patients. Into this corridor the consulting-rooms open, all of which are provided with dressing-rooms for males and for females. Out-patients attend in one or other of the following sections: (1) a section in which wounds, abscesses, and superficial inflammations are treated, the medical students being admitted in groups of 10 or 12, changing fortnightly; (2) a section for diseases of joints and bones and orthopædics, in which the students are admitted in groups of six; (3) a section for urological cases; and (4) a section for laryngeal and nasal cases. In these rooms minor surgical operations are performed, and after-treatment is given to patients discharged from the clinic but not entirely recovered. At one end of the corridor are the X ray laboratory and the photographic room, with the room for laryngeal and nasal cases between them. The separation of the X ray room from the photographic room is made purposely in order to prevent the sensitised plates from suffering under the action of the X rays. In the right wing of the ground floor there are: (1) the histological, chemical, bacteriological, and experimental laboratories; (2) the museum; and (3) the library and reading-room, together with the medical officers' dining-room and other apartments for their use. In the central part of the high ground floor, close to the main entrance on the left is the doorkeeper's lodge, and on the right a large lift in which there is room for one bed and three persons accompanying the patient. There is a wide staircase leading into the vestibule of the high ground floor. Into this vestibule the waiting-room, study, and dressing-room of the professor open. Into the left half of the vestibule a small lecture room opens for lectures delivered by *privat-docenten* and for certain courses of instruction. Opposite the main entrance of the large vestibule is the entrance to the large amphitheatre-like lecture hall, on both sides of which are waiting-rooms for male and female patients. Next to it there are the sterilising room and the room in which the patients are prepared for operation. The main lecture hall is lighted by a large window facing north. The space provided for the lecturer is so planned that operations can also be performed in it, and around this space there are 224 seats arranged in amphitheatre fashion. This lecture hall is connected with the right and left wings of the clinic by a covered glass corridor. The students come into the lecture hall from the first floor through a cloak-room, where there are lavatories for ladies and gentlemen. The male patients are accommodated in four large wards each containing 11 beds, four small wards each containing five beds, and four wards containing two beds. On the east side of the large wards there is a covered balcony, used as a recreation room, called the loggia. The left half of the floor is for septic and the right for aseptic patients, and in each wing there is a special room devoted to treatment and bandaging, and one dining-room, serving also as a recreation room for patients. The arrangement of the second storey corresponds with that of the first floor and contains the wards and rooms for female patients. In the northern part of the right wing is the aseptic operating theatre and on the left wing the operating theatre for septic cases. These theatres are arranged on the following plan:

(1) bathroom for patients; (2) preparatory room for patients; (3) instrumentarium; (4) sterilising room; (5) washing room for medical officers; and (6) operating theatre. All the floors are paved with glazed tiles and the walls are overlaid with white enamelled tiles. The sterilisers for instruments and dressing material are built in the wall between the operating theatre and sterilising room, and are accessible from both sides. On the flat roof there are terraces for the use of the patients; as a protection against the heat of the sun there are large roll-up awnings. These terraces can be utilised for light baths and sun baths. The clinic still needs a building for the isolation of patients suffering from severe infectious diseases, and steps have already been taken towards supplying this deficiency.

Nov. 7th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Institute of Tropical Diseases.

THE Registrar of the University of Sydney reports that an appointment has been made in connexion with the Australian Institute for Tropical Diseases. The headquarters of the institution will be at Townsville, Queensland, and the first director will be Dr. Anton Breinl. Dr. Breinl is a graduate of the University of Prague, where he occupied for some time a position as demonstrator of pathological anatomy. Latterly he has been connected with the Liverpool School of Tropical Medicine.

Tuberculosis in New South Wales.

The Government statistician has issued a pamphlet analysing the mortality from tuberculous diseases in New South Wales. A comparison of death-rates for different types shows that pulmonary tubercle provides the great bulk of mortality. A table is given setting forth the salvage of life possible had the present-day rates prevailed through the last 33 years:—

	Actual deaths.	Salvage by present rates.	Salvage per cent. of actual.
Males—Metropolis	11,504	5122	45
Country	13,826	3159	23
Females—Metropolis	8909	3492	39
Country	8693	1723	20

Clinical Teaching at Sydney.

Medical students at the University of Sydney are in future to have the privilege of attending clinical teaching at the Sydney Hospital as well as at the Royal Prince Alfred Hospital. The latter institution is practically in the University grounds and while the number of students was small answered all requirements, but the school has shown such expansion that extra accommodation is needed. The following lecturers have been appointed at the Sydney Hospital: Clinical medicine, Dr. Sydney Jamieson; clinical surgery, Dr. H. L. Maitland; tutorial medicine, Dr. Hamilton Marshall; and surgery, Mr. B. J. Newmarch.

Telephone Mouthpieces.

An investigation was recently undertaken by Dr. F. Tidswell, director of the Bureau of Microbiology of New South Wales, into the question of the transmission of infection by telephone receivers. He examined 50 receivers and formed the conclusion that these mouthpieces are not a usual harbour for pathogenic germs. Diphtheria and tubercle bacilli were notably absent.

Asylum Pathologist.

The Victorian Government appoints an asylum pathologist under the present Lunacy Act, but the Faculty of Medicine has reported to the University Council that "the salary is not sufficient to induce a competent officer to surrender his whole time, and the duties include the making of post-mortem examinations in these asylums whenever the coroner so directs. In these circumstances a satisfactory result is impossible. Adequate research work is out of the question. The restoration of the duty of making post-mortem examinations to the medical staff of the hospital would greatly promote the scientific work, and full protection would be given patients if the coroner retained power in any particular case to instruct the neuro-pathologist or an outside medical practitioner to make a post-mortem." After consultation with the Inspector-General, the Faculty recommended that a neuro-pathologist should be appointed jointly by the Government and the University Council, to devote his whole time to the work of research and teaching. The salary named was £650 per annum, of which the department would provide £600, and £50 would be added by the University. The officer appointed would act as lecturer in the University.

Defective Teeth.

A partial examination of the teeth of State school-children in Melbourne reveals the fact that the proportion with defective teeth is very much the same as that in other countries. About 95 per cent. required more or less attention. Representations have been made by the Odontological Society as to the necessity of having one or more dental inspectors appointed to visit State schools.

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Mr. W. D. Pasey recently claimed in Western Australia to have discovered a new method of milk preservation by which milk could be kept fresh for practically an indefinite period. A bottle of milk stated to be five months old was some weeks ago handed to the Government analyst. It was kept a week further before being analysed, and the following report was submitted: "Total solids, 14·1 to 14·31 per cent.; fat, 4·55 per cent.; solids not fat, 9·76 per cent.; ash, 0·73 per cent.; specific gravity, 1·34. The milk has apparently been treated, but is free from any of the ordinary preservatives. It behaves in a peculiar manner in certain respects which cannot be explained without full particulars of the treatment it has undergone, but I see no reason to believe that it is in any way detrimental to health." Dr. F. Andrews, who was given a sample, said to be two months old, for bacteriological examination, kept it for four days before making his investigation. He reports that it gave almost the tests of normal milk. It formed almost normal junket, the clot being somewhat softer than that of ordinary milk, which might have great advantage from the standpoint of infant-feeding. 12 cultures remained sterile. He adds: "The most striking thing about the milk was the way it remained fresh after opening the bottle. Ordinary pasteurised milk keeps for only a limited time, and for a very short time once exposed to the air. I kept this milk exposed to the air for three days, and drank some of it then, and though I did not re-examine it bacteriologically, it was perfectly fresh milk so far as taste went."

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Clinic, vacated by the death of Professor von Rosthorn, has been similarly given to his assistant, Dr. Fritz Kermauner, for the current winter session.

Dr. Stanley B. Atkinson, J.P., was re-elected to the Stepney borough council last week.

Mr. R. Henslowe Wellington delivered a lecture upon Forensic Medicine and Coroner's Law on Wednesday last before the North-East London Post-Graduate College.

UNIVERSITY OF SHEFFIELD.—The Council of the University of Sheffield has made the following appointments: Mr. George Wilkinson, B.A., M.B. Cantab., F.R.C.S. Eng., to the newly instituted lectureship in diseases of the ear, nose, and throat; Mr. George H. Pooley, B.A., F.R.C.S. Eng., F.R.C.S. Edin., to the lectureship in ophthalmology.

AT a meeting of the Yeovil (Somerset) education committee held on Oct. 29th Alderman Sibly stated that after consultation with the chairman and the medical inspector of schools he had decided to defray the cost of providing a dental surgery for the treatment of school children, and he would also provide the maintenance funds for the first year. The committee awarded Alderman Sibly a hearty vote of thanks for his generosity.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next general or quarterly meeting of the above association will be held at 3 o'clock on Tuesday, Nov. 23rd, at 11, Chandos-street, Cavendish-square, London, W., under the presidency of Professor W. Bevan-Lewis. It will be preceded at 2 30 P.M. by the adjourned business portion of the last annual meeting. Members will dine together at the Café Monico at 7 P.M.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.—The annual dinner of this school will be held at the Trocadéro Restaurant, W., on Friday, Dec. 10th, at 6.45 for 7.15 P.M. Mr. H. Work Dodd will take the chair and there will be music after dinner. Applications for dinner tickets should be sent to Dr. A. G. Phear, 47, Weymouth-street, W., or to Mr. T. P. Legg, 141, Harley-street, W., not later than Dec. 1st.

THE MEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.—The London County Council this week dealt with a part of the recommendations of the education committee for the medical treatment, through voluntary agencies, of London school children, referred to in THE LANCET last week. The main report advising the subvention of eight hospitals has not yet reached the Council, but on Nov. 9th it decided to accept the offer of the Hampstead Council of Social Welfare to provide gratuitously for one term medical treatment for children attending the Hampstead elementary schools. In this case it is proposed to establish two clinics, one in the out-patient department of the Hampstead General Hospital, and the other at some convenient centre in the western part of the borough. The treatment will be given by local medical men who are specialists in the ailments of children. We understand that the experiment is under the control of Mr. Hancock Nunn.

COMPLIMENTARY DINNER TO DR. W. A. DINGLE.—Dr. W. A. Dingle, the retiring Mayor of the borough of Finsbury, on Monday night last, to mark the close of his period of office, was entertained at dinner at the Holborn Restaurant. The chair was occupied by the Rev. Prebendary G. H. Perry, rector of St. Luke's, Old-street, himself an ex-Mayor of Finsbury, and among the others present were Alderman Enos Howes, J.P., L.C.C., Colonel Welby, L.C.C., the retiring Mayor of Holborn (Alderman Nolan Glave), Dr. W. Rawes, Dr. R. W. Gilmour, Mr. R. D. MacGregor, Dr. Gibbons, and Dr. A. E. Thomas, and a number of clergy. During the proceedings the chairman spoke of the very successful manner in which Dr. Dingle had performed the duties of Mayor, and asked his acceptance of a framed and handsomely illuminated address, the wording of which comprised a vote of thanks passed to him and the Mayoress by the borough council at its last meeting. Dr. Dingle was also presented with a silver epergne and Mrs. Dingle with a pair of bracelets.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Parliamentary Session.

THE House of Commons, having read the Finance Bill the third time, has adjourned for a fortnight. The second reading debate on the measure will in all probability commence in the House of Lords on Monday, Nov. 22nd. It is expected that the session will come to an end in the early days of December.

Asylum Officers' Superannuation Bill.

The Asylum Officers' Superannuation Bill has passed the report stage in the House of Lords. Further changes were made in the text of the measure. Lord MONKBRETTON has taken charge of the Bill in the Upper Chamber, and has been in close communication with Sir WILLIAM COLLINS in regard to all the suggested modifications in its terms.

The Oaths Bill.

The Oaths Bill, which is designed to facilitate the practice of taking the oath by uplifted hand in courts of law, has received a third reading in the House of Lords. It has also passed through the House of Commons.

The London Milk-supply.

If it were not a serious matter there would be something amusing in the way the responsibility for the purity of London's milk-supply is being bandied between Parliament and the London County Council. It reminds one of the ancient game of battledore and shuttlecock, and the manner of playing is as follows. The London County Council inserts in its annual General Powers Bill clauses to enable it to exclude "dirty" milk from the metropolis. When the Bill is before Parliament the President of the Local Government Board promises to introduce general legislation, and on this understanding the Council withdraws its clauses. Pressure of business prevents the Government from carrying out its promise, and next year the Council's attempt to obtain for London what the country as a whole cannot succeed in getting, is repeated, and is met with the same plea as before. And so the game goes on, and infant mortality with it. This week the County Council decided to have another try next session to get its clauses through, and at the same time adopted some of the Government's ideas towards the solution of the problem, namely, the clause in the Milk and Dairies' Bill, 1909, which empowers local authorities to prohibit the sale of milk derived from cows suffering from tuberculosis with emaciation as well as those suffering from tuberculosis of the udder; and another which enables a qualified veterinary surgeon, if provided with an authority from the medical officer of health, to exercise the powers of inspection and sampling which at present are only exercisable by the medical officer if accompanied by a veterinary surgeon.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 3RD.

Medical Examination of Territorial Recruits.

Mr. FLETCHER asked the Secretary of State for War whether he would explain why medical men who were Territorial officers received daily pay when in camp, but when deputed, as in March last, to examine recruits and men seeking promotion as non-commissioned officers, were told by their commanding officers that fees were contrary to regulations.—Mr. HALDANE (by written answer) replied: No fee is prescribed; but a grant of 1s. is made to an association for each recruit passed. These grants form a fund from which fees for medical examination of recruits can be had if necessary. It is, however, anticipated that in most cases the medical examinations will be conducted by the Royal Army Medical Corps of the Territorial Force as part of their military duties, as was done in the case of the Volunteers. No officer of the Territorial Force is paid for duties outside camp or training.

THURSDAY, NOV. 4TH.

The Public Health Acts Amendment Act, 1907.

Mr. J. W. WILSON asked the President of the Local Government Board whether he would state the number of applications received from rural, urban district, and borough councils, respectively, for the adoption, in whole or part, of the Public Health Acts Amendment Act, 1907; and to what number of these the necessary authority had been already given by the Local Government Board.—Mr. BURNS furnished the following written reply: The following statement gives the information asked for:—

	Number of applications received by the Local Government Board.	Number of orders issued.
Boroughs	130	103
Urban districts (other than boroughs)	278	252
Rural districts	55	45
	463	400

The Finance Bill and Asylum Grounds.

In answer to Mr. NIELD, who asked the Chancellor of the Exchequer whether, under the terms of the Finance Bill, the undeveloped land of a county asylum used either for the purpose of the recreation of the patients or under cultivation for the supply of produce to the asylum would be chargeable either with increment tax or undeveloped land tax, Mr. LLOYD GEORGE replied: Clause 35 of the Finance Bill exempts

from both increment value duty and undeveloped land duty land held by a rating authority.

The Royal Army Medical Corps in Ireland.

Mr. ASHLEY asked the Secretary of State for War whether steps were being taken to ensure that officers of the Royal Army Medical Corps serving in Ireland should this year receive the full leave to which they were entitled by the regulations.—Mr. HALDANE wrote in reply: Under normal conditions it will now be possible to give every Royal Army Medical Corps officer serving in Ireland throughout the year full leave, provided that he is willing to take it when the exigencies of the service permit.

BOOKS, ETC., RECEIVED.

LAURIE, T. WERNER, London.
Special Messenger. By Robert W. Chambers. Price 6*s*.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.
How to Feed Children. A Manual for Mothers, Nurses, and Physicians. By Louise E. Hogan. Ninth edition. Newly revised. Price 5*s*.
The Harvey Lectures. Delivered under the Auspices of the Harvey Society of New York, 1907-08. Price 9*s*. net.

MACMILLAN AND CO., LIMITED, London.
A System of Medicine. By Many Writers. Edited by Sir Clifford Allbutt, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A.; and Humphry Davy Rolleston, M.A., M.D., F.R.C.P. Vol. VI.: Diseases of the Heart and Blood-vessels. Price 25*s*. net.

MARHOLD, CARL, Halle-a.-S.
Über nichtdiabetische Glykosurien. Von Prof. Dr. Ferdinand Blumenthal. Price Pf.75.
Theorie und Praxis der Eisentherapie nach dem gegenwärtigen Stande der Wissenschaft. Von Dr. Hans Schirokauer. Price M.1.
Enzyklopädisches Handbuch der Heilpädagogik. Herausgegeben von Prof. Dr. med. A. Dannemann, Hilfsschul-Leiter H. Schober und Hilfsschul-Lehrer E. Schulze. Lieferung I. Vollständig in 10 Lieferungen à M.3.

METHUEN AND CO., London.
Air and Health. By Ronald Campbell Macfie, M.A., M.B., C.M. Price 7*s*. 6*d*. net.
Food and Health. By Arthur E. Powell, Lieutenant, Royal Engineers. Price 3*s*. 6*d* net.
The Pilgrim Fathers, their Church and Colony. By Winnifred Cockshott, St. Hilda's Hall, Oxford. Price 7*s*. 6d. net.

MURRAY, JOHN, London.
Mosquito or Man? The Conquest of the Tropical World. By Sir Rubert W. Boyce, M.B., F.R.S. Price 10*s*. 6*d*. net.

NEWS PRINTING COMPANY, THE, State Printers, Paterson, N.J., U.S.A.
Thirty-second Annual Report of the Board of Health of the State of New Jersey, 1908, and Report of the Bureau of Vital Statistics. Price not stated.

NISBET, JAMES, AND CO., LIMITED, London.
Our National Drink Bill, Its Direct and Indirect Effects upon National Health, Morals, Industry, and Trade. By John Newton. Price 1*s*. net.

RICHARDS, GRANT, London.
The Birds of the British Islands. By Charles Stonham, C.M.G., F.R.C.S., F.Z.S. With Illustrations by Lilian M. Medland, F.Z.S. In Twenty Parts. Part XV. Price 7*s*. 6*d*. net.

SAUNDERS (W. B.) COMPANY, London and Philadelphia.
Principles of Pharmacy. By Henry V. Arny, Ph.G., Ph.D. Price 21*s*. net.
Exercise in Education and Medicine. By R. Tait McKenzie, B.A., M.D. Price 15*s*. net.
A Text-book of Physiology. By William H. Howell, Ph.D., M.D., LL.D. Third edition, thoroughly revised. Price 18*s*. net.

SPRINGER, JULIUS, Berlin.
Einführung in die moderne Kinderheilkunde. Von Dr. B. Salge. Price M.9.
Über das Wesen der formativen Reizung. Von Jacques Loeb. Vortrag gehalten auf dem XVI. Internationalen Medizinischen Kongress in Budapest, 1909. Price M.1.
Klinik der Missbildungen und kongenitalen Erkrankungen des Fötus. Von Professor Dr. R. Birnbaum. Price, paper, M.12; bound, M.13.60.

STUBER, A. (C. KABITZSCH), Würzburg.
Taschenbuch der Therapie, mit besonderer Berücksichtigung der Therapie an den Berliner, Wiener u.a. deutschen Kliniken. Herausgegeben von Dr. M. T. Schnirer. Sechste vermehrte u. verbesserte Ausgabe. Price M.2.

TAYLOR AND FRANCIS, London.
University of London. University College. Calendar. Session MDCCCCIX.-MDCCCCX. Price not stated.
Calendar of the Royal College of Surgeons of England. August 1st, 1909. Price 1*s*.

UNIVERSITY OF LONDON, South Kensington, London, S.W.
University of London. The Calendar for the Year 1909-1910. Price 5*s*. net; postage 5*d*.
Regulations and Courses for Internal Students. September, 1909. Price not stated.
Regulations for External Students. September, 1909. Price 1*s*. 6*d*.; postage 4d.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)
Gout: Being Part VIII. of Several Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Professor Dr. H. Strauss. Authorised Translation under the Direction of Nellis Barnes Foster, M.D. Price 3*s*. 6*d*. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BALLANTYNE, ARTHUR J., M.D., F.F.P.S. Glasg., has been appointed Surgeon to the Eye Infirmary, Glasgow.
BEARN, A. RUSSELL, M.B., Ch.B. Edin., has been appointed House Physician at the Hampstead General Hospital.
CATES, JOSEPH, M.D. Lond., D.P.H. Camb., has been appointed Assistant Medical Officer of Health to the City of Coventry.
COEN, J. A., L.R.C.S. Irel., L.K.Q.C.P. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ballaghaderrin District of the county of Roscommon.
DALY, ASHLEY S., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Anæsthetist to the London Hospital.
DEIGHAN, W. J., L.R.C.P. & S. Irel., has been appointed Deputy District Medical Officer and Public Vaccinator for the North Wimbledon District of the Kingston Union.
DERKSEN, C. H., M.D. Edin., has been appointed House Surgeon at the Hampstead General Hospital.
DICKEY, W., has been appointed House Surgeon at the Royal Victoria Hospital, Belfast.
FITZGERALD, F. C., L.R.C.S. Irel., L.A.H. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Newtownbutler District of the county of Fermanagh.
GEORGESON, J. W., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Lauder District of the county of Berwick.
GRAY, A. M. H., M.D. Lond., M.R.C.P. Lond., has been appointed Physician in Charge of the Skin Department of University College Hospital.
HEY, WILSON H., F.R.C.S. Eng., M.B., Ch.B. Vict., has been appointed Resident Surgical Officer at the Manchester Royal Infirmary.
HOUSTON, M. F., has been appointed House Surgeon at the Royal Victoria Hospital, Belfast.
LLOYD, D. G., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the Llanfyrnach Rural District Council.
MUMFORD, WILFRED G., M.B. Lond., F.R.C.S. Eng., has been appointed Honorary Assistant Surgeon to the Royal United Hospital, Bath.
PRICE, J. T., M.D. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Llansawel District of the county of Carmarthen.
STEPHEN, W. LEGGE, has been appointed Junior House Physician at the Prince of Wales's General Hospital, N.
STEVEN, W. S. R., has been appointed House Surgeon at the Royal Victoria Hospital, Belfast.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM.—Junior Assistant Physician. Salary £120 per annum, with board, lodging, and laundry.
BETHLEM HOSPITAL.—Two Resident House Physicians, unmarried, for six months. Salary at rate of £25 each per quarter, with board and washing.
BIRKENHEAD BOROUGH HOSPITAL.—Senior Resident House Surgeon. Salary £100 and fees. Also Junior Resident House Surgeon. Salary £80 and fees.
BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road.—House Surgeon. Salary £100 per annum, with board, residence and laundry.
BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.
CANCER HOSPITAL, Fulham-road, London, S.W.—House Surgeon. Salary £70 per annum. Also Assistant Surgeon.
CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon for Ophthalmic and Ear and Throat Departments. Salary £60 per annum, with board and residence. Also House Surgeon for six months. Salary £30, with board, residence, and laundry.
EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—Ophthalmic Surgeon.
GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing.
HALIFAX COUNTY BOROUGH.—Schools Medical Officer. Salary £250 per annum.
HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.
HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Fourth Anæsthetist. Salary £15 15*s*.
HULL, ROYAL INFIRMARY.—Casualty House Surgeon. Salary at rate of £60 per annum, with board and lodging.
ITALIAN HOSPITAL, Queen-square, London, W.C.—House Surgeon for six months, renewable. Salary £60 per annum, with board and residence.
LEEK, STAFFORDSHIRE COUNTY ASYLUM, Cheddleton.—Junior Assistant Medical Officer. Salary £200 per annum, with board, apartments, and washing.
LEICESTER INFIRMARY.—Assistant House Physician. Salary at rate of £60 per annum, with board, apartments, and washing.
LIVERPOOL SCHOOL OF TROPICAL MEDICINE, UNIVERSITY OF LIVERPOOL.—Medical Protozoologist.
LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £100 per annum, with rooms, attendance, board, and washing.
MANCHESTER CHILDREN'S HOSPITAL, Gartside-street.—Medical Officer (non-resident). Salary £180 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Senior and Junior Resident Medical Officers. Salary £175 and £75 per annum respectively, with board, residence, and washing. Also Clinical Pathologist. Salary 100 guineas per annum.

NEWARK-ON-TRENT HOSPITAL AND DISPENSARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and laundry.

NEWCASTLE-UPON-TYNE CITY LUNATIC ASYLUM, Gosforth.—Junior Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, and laundry.

NEWCASTLE-UPON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary £160 per annum.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—House Physician and Resident Medical Officer (females). Also Clinical Assistant and Anæsthetist.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £170, with apartments, attendance, light, and fuel.

OLDHAM INFIRMARY.—Second and Third House Surgeon. Salaries £100 and £80 per annum, with residence, board, and laundry.

PEMBROKESHIRE COUNTY COUNCIL.—Medical Officer of Health. Salary £400 per annum and travelling and other expenses.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiner in Midwifery Also a Member of the Court of Examiners.

ROYAL DENTAL HOSPITAL, Leicester-square.—Joint Morning House Anæsthetist. Salary £25 per annum.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, Strand, W.C.—Clinical Assistants.

ST. MARY'S HOSPITAL, LONDON, W.—Surgeon in Charge of Out-patients.

SALOP INFIRMARY AND COUNTY HOSPITAL.—House Physician. Salary at rate of £70 per annum, with board and apartments.

SCOTLAND, HARRIS PARISH.—Medical Officer. Salary £126 per annum, with free house.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £50 per annum, with board, lodging, and washing.

SUNDERLAND, MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

WAKEFIELD, CLAYTON HOSPITAL.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

WAKEFIELD, WEST RIDING ASYLUM.—Assistant Medical Officer. Salary £140, with apartments, board, washing, and attendance.

WARWICK ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, residence, laundry, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician for six months. Board, lodging, and laundry allowance provided.

WEST SUFFOLK EDUCATION COMMITTEE.—Medical Inspector of School Children. Salary £250 per annum, with travelling expenses.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Junior House Surgeon. Salary at rate of £80 per annum, with board, residence, and washing.

WHITECHAPEL UNION INFIRMARY, Vallance-road, N.E.—First Assistant Resident Medical Officer. Salary £130 per annum, with rations, apartments, coal, gas, and washing.

WINDSOR, KING EDWARD VII. HOSPITAL AND DISPENSARY FOR WINDSOR, ETON, AND DISTRICT.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, laundry, and attendance.

WISBECH, NORTH CAMBRIDGESHIRE HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with unfurnished house.

WORKSOP DISPENSARY AND VICTORIA HOSPITAL.—Medical Officer and House Surgeon. Salary £150 per annum, with rooms, coals, gas, and attendance.

YORK COUNTY HOSPITAL.—House Physician. Salary £100 per annum, with board, residence, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Clondalkin, in the county of Dublin; at Donington, in the county of Lincoln; at Wombwell, in the county of York; and at Slough, in the county of Buckingham.

Births, Marriages, and Deaths.

BIRTHS.

GRAHAM.—On Nov. 4th, at Gwydir House, Mill-road, Cambridge, the wife of J. C. W. Graham, M.A., M.D., of a son.

MARRIAGES.

BROWN—BURGESS.—On Nov. 6th, at All Saints' Church, Hove, by the Right Rev. the Bishop of Lewes (Dr. Hedley Burrows), assisted by the Rev. Canon J. S. Flynn, Vicar of St. John's, Hove, and the Rev. G. E. H. Theophilus, Vicar of St. James's, Tredegar, Horace George Brown, B.A. Cantab., M.R.C.S., &c., elder son of G. A. Brown, J.P., M.R.C.S., &c., Tredegar, to Muriel Evelyn Rosalie, eldest daughter of Mr. and Mrs. H. W. Burgess, of 24, Palmeira-square, Hove.

LISTER—HALLOWES.—On Oct. 9th, at the Union Church, Mussoorie, U.P., India, Captain A. E. J. Lister, M.B., B.S., F.R.C.S., Indian Medical Service, to Hester Isabel Knight, the younger daughter of Rev. J. F. T. Hallowes, M.A., and Mrs. Hallowes.

WALKER—LE BRETON.—On Nov. 4th, at All Souls Church, Langham-place, London, Robert Wynne Stanley Walker, M.B., B.C., to Alice May, only daughter of C. M. le Breton, K.C.

DEATHS.

CLUTTON.—On Nov. 9th, at Portland-place, W., Henry Hugh Clutton, M.C., F.R.C.S., Senior Surgeon of St. Thomas's Hospital, aged 59 years.

SCOTT.—On Nov. 7th, at Burlington-road, Dublin, James Edward Scott, M.D., D.S.G. (late Surgeon-Major 4th Battalion Rifle Brigade), in his 85th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

AN EIGHTEENTH-CENTURY ACCOUNT OF THE "SNAKE-STONE."

THE remarks upon the treatment of adder bites which we have published recently have inspired a correspondent to forward us some eighteenth-century papers describing the virtues of the "snake-stone," together with an actual example of those curious bodies which were once held in widespread repute as a cure for snake-bites and as a panacea for many other disorders. These interesting relics of antique medicine were found by our correspondent whilst rummaging in an Essex manor house. There are two MSS. One is an old invoice addressed, "For the Reverd. Mr. Durham at Upmington, near Rumford," and on the back of this document are scribbled three notes, which read, "Serpentine Stone (Cobra) Snake, &c. Lay it on"; "See Dr. Brockers Nat. Hist. p. 388, vol. 3. Kircher's China, Illustrated, p. 80, 1, 2, Piedro de Cobra. Ogilvy's Japan, p. 304"; and "Cousin Eliz. Jones in her D. room about a qr. before 3 o'c. July 9, 1779." The other document, which has begun to crumble from age, is headed "The wonderful virtues of the stone called Pietra di Cobra, which comes from the Indies," and is signed "Swinton, E., Coll. Wadh., Oxon., Aug. 29, S.V. 1732," with the date repeated under the address "Liburni." The following is an extract from the four closely written quarto pages, which are acknowledged to be "translated from the Italian original printed at Bologna and Foligno by Nicolo Campitelli, Ap. 1732":—

> "This stone is called Pietra di Cobra by the Italians, because the Portuguese give it that name, by whom it is frequently brought into Europe. These are found in many provinces of the East Indies, but chiefly in the Province of QUAMSA (or QUANG-SI) in China, as likewise in several parts of INDOSTAN, certain it is that in these parts lie hid serpents most venemous with hairy heads, which are therefore called SERPI CAPELLATI, which are wont to be ..... gathered with great diligence by Hormus or solitary men which are those Anchorets which are called JOGUES or JOQUERS, which are philosophers or priests of the Idolatrous Nations of those countries: and in the heads of these serpents ..... is this stone found, which has virtues so wonderful, and which we are going to enumerate.
>
> 1. The colour of this stone approaches near a black. Some of them are spotted with a sort of Ash colour or pale grey: in order to know whether this stone is genuine or counterfeit you must apply it to your lips, and if it sticks close to them, and is not separated without great difficulty, you may rest assured that the stone is genuine.
>
> 2. If you apply this stone to the Bite of any Venemous Animal, that is to the Puncture or Wound made by it, it will immediately stick to the wound so as not to be easily disengaged from it, and after it has sucked out all the poison will of itself fall off, leaving the place intirely healed, and the poison perfectly cured. And if after the stone be taken off, or falls off from the wound, it be put in a little Wine or Water, and be left there for a small time, it will emit all the Poyson (into the said wine or water) and being washed, may be reserved for another occasion."

The next eight sections describe how the stone may be used to cure the bites of vipers, scorpions, wasps, tarantulas, and mad animals, and swellings caused by pricking thorns; how it will draw the morbid matter out of "Scrophulous Eruptions, Pestilential Bubos, malignant humours, or any such like disorders"; how it may be pulverised and drunk to expel poisons from the "more noble parts of the body," and how it will cure the venereal disorders and has been applied with the greatest success in the cure of impotence, "a small incision being first made over the Gland (a very dangerous experiment) that the stone may be thereby made to attract the more strongly." The twelfth section warns those who use the stone to throw away the milk or wine in which they may wash it after use, as these liquids become highly charged with poison in consequence; the thirteenth describes its use in "malignant fevers and other acute violent distempers" in the East Indies, and the document ends with references to the writings of Father Athanasius Kircher, the "Flora Sinensis" of Father Michael Boim, the "Mercurius Brasilicus" of Father Valentine Stanzel, and to other works dealing with the subject.

The "snake-stone" found with this document, which has been sent for our inspection, is a thin oval body a little more than an inch long and three-quarters of an inch broad. It adheres to the lips to some extent when applied to them, but not very closely. It is of grey colour with dark streaks, is of light weight and polished surface, and has the consistency of horn. We believe that snake-stones were as a rule made from stags' antlers from which the animal matter had been removed by heat, but this was not their only origin. It is quite certain that they never came out of the head of a serpent, in spite of the traditional belief, which was held well into the last century. Indeed, the curative virtues of the "snake-stone" were not finally discredited until 1867, when Dr. John Shortt of Madras performed some experiments which were reported in THE LANCET of

May 11th of that year. He obtained six large cobras and made them bite pariah dogs, the snake-stone being immediately applied to the wounds, a proceeding which did not prevent the speedy death of the animals. In the course of these experiments Dr. Shrott found that the poison of a cobra was soon exhausted by frequent biting, and this observation is supported by a letter from Dr. M. Amsler on a case of adder bite which we printed in our issue of Oct. 30th. A fairly complete account of the "snake-stone" is given in Buckland's "Curiosities of Natural History," a book which we commend to the notice of any who may be interested and who may not have access to the work of the learned Jesuit Father Athanasius Kircher, that attracted the attention of "Cousin Eliz. Jones in her D. room" 130 years ago.

SWIFTHAND.

Sir Edward Clarke has always been interested in shorthand writing, and two years ago he published a system of his own invention. This, however, has nothing to do with "Swifthand,"[1] which at the first glance reminds one of the ancient Irish writing known as the Ogham alphabet. On closer inspection it differs considerably: it is not so cumbersome. The author seems to have contrived what an ancient author is only said to have done—viz., made "a cypher and character so contrived that one line without turns or circumflexes stands for each and every one of the 24 letters and as readily for the one letter as the other." Sir Edward Clarke's "Swifthand," in which every word is written as spelled, has an alphabet composed of oblique straight strokes with the slope of ordinary handwriting. There are 11 such simple oblique strokes, 9 more oblique strokes with a little horizontal short stroke or dash (which look like the figure 7 or an inverted 7) prefixed or suffixed, and one oblique stroke with a small hook prefixed. In addition, there are four tiny strokes or dashes in various positions and one little semicircle (the "u"), to represent the vowels a, e, i, o, u. These vowels could be represented by imagining a trident whose prongs, starting from the left, would be a, o, and i, and whose base is e. These lines are of varying length in relation to each other and are placed in various positions—viz., resting on the line, hanging from the line, above or below the line, and through the line. This necessitates an accuracy and neatness in writing Swifthand that may limit its popularity. It is astonishing how quickly one can read the words after a little practice with such simple signs. It is an interesting book and a fair practical trial is the only way to appreciate the system, which might be of service to medical men in recording cases.

AN INJURED EASTERN INNOCENT.

A CORRESPONDENT has forwarded us a copy of the Calcutta *Statesman* of Sept. 25th last containing a letter written by Babu Takur Das Pal to the markets committee of the corporation.

> My prayer is (says the writer) that I have a milk-shop at the above address. At this shop I sell milk adulterated with water. I sell it in the condition I buy it from the market, and I do not water it myself. But the Food Inspector unable to stop sale of adulterated milk in the market unjustly threatens me. I have, therefore, publicly put up a signboard stating that adulterated milk is sold in my shop. I submit this for your Honor's information that the Food Inspector may not oppress me when I am not committing an offence.

In commenting upon this amusing document the *Statesman* says:—

> From a report by the Health Officer, it appears that no fewer than 28 signboards have been put up in the Jorasanko milk bazaar bearing the legend "Milk with water is sold here" or "Milk mixed with water." The exhibition of these boards precludes the prosecution of the vendors for selling adulterated milk. "We can only seize under Section 503 for the purposes of taking before a Magistrate," reports the Health Officer.

We are used to the notices of certain milk purveyors in this country stating that every effort is made to supply pure milk, but that no guarantee is given of its purity, and such notices are bad enough, but they are sweet reasonableness itself when compared to the impudence of this self-pitiful Babu.

THE TOXICITY OF THE DIFFERENT VARIETIES OF STROPHANTHIN.

OWING to the interest which has been lately aroused in the administration of strophanthin by intravenous injection it is opportune to refer to a paper by M. Pedebidon in the *Comptes Rendus de l'Académie des Sciences* of July 26th, wherein it is pointed out that the various botanical species of strophanthus yield strophanthins of widely varying potency. Strophanthus Kombé yields a crystalline glucoside, which kills a rabbit in doses of ½ milligramme per kilogramme of body weight, when administered by hypodermic injection. Strophanthus gratus also contains a crystalline glucoside, and these two varieties of strophanthin are alike in toxicity and in physiological properties. Strophanthus hispidus differs from the other varieties in yielding an amorphous glucoside which is only two-fifths as toxic as the crystalline varieties. During the past two years the amorphous strophanthin has been used and recommended in Germany for intravenous injection, and it is important to remember that it is less toxic than the crystalline varieties, which are liable to produce disastrous results if given in equal doses. It is interesting to note that the glucoside obtained from strophanthus Kombé is the next higher homologue of ouabaine, while that from strophanthus gratus is identical with ouabaine. From experiments on animals M. Pedebidon has found that the strophanthin last referred to is 20 to 30 times as toxic when injected into the muscles as it is when given by the mouth, and 43 to 86 times as toxic when administered intravenously. He remarks that the drug is well tolerated when injected into the muscles or given by the mouth even in high doses, no cumulative effect being noted after repeating the dose every day for 40 days. He recommends that the intravenous method of administration should be used only in exceptional cases, giving preference to the other two methods, particularly favouring the administration of granules of the standardised extract of strophanthus by the mouth.

PROFESSIONAL AMENITIES.

To the Editor of THE LANCET.

SIR,—I am sorry if anyone's feelings were hurt by my use of the term "raw" in its sense of "unpractised" (in administration of anæsthetics). I claim that those who give anæsthetics should be trained to use them.

I am, Sir, yours faithfully,

Whitehall-gardens, S.W., Nov. 8th, 1909. J. VINCENT BELL.

THE HOSPITAL GAZETTES.

Guy's Hospital Gazette (Oct. 30th) contains more than an echo of the present political noise. It seems that the hospital residents as a body have been writing to the daily press to disclaim the partisanship shown in the recent Bermondsey by-election by a group of Guy's students as representing the general feeling of the hospital, a letter which was prompted by the impression given by certain newspapers that the hospital was identifying itself with the interests of Dr. A. Salter, the Socialist candidate, who was a brilliant student of Guy's. The letter was resented by some of the students who supported Dr. Salter, as appears from the correspondence in this number of the *Gazette*, but is condoned by the editor. It is obvious that a corporation such as a hospital must be strictly non-political, and we have always thought that medical men taking any part in events of public moment outside their own professional interests had better do so as private individuals. We have known, for instance, a student to address a letter condemning scientific research to a public print upon notepaper bearing the name of his hospital—an obviously improper proceeding. Another column of the *Guy's Hospital Gazette* contains a report of a students' debate upon the Budget, the principles of which were "strongly disapproved" by 44 votes to 19. Mr. Arthur Todd-White breaks further political ground by an article advocating the establishment of a Ministry of Public Health.——The *London Hospital Gazette* (November) describes a farewell dinner to Mr. C. W. Mansell Moullin on his retirement from the active staff of the hospital, and gives a portrait of that popular surgeon. The Clinical Supplement contains a paper on Eclampsia by Dr. R. D. Maxwell, and in the body of the paper Mr. T. S. Rippon describes an appliance for holding the jaw forward during the administration of ether anæsthesia. A description of a Yeomanry field-day and notes on various topics are other features of an interesting number.—— The *Middlesex Hospital Journal* (October) contains Dr. J. S. Goodall's Introductory Address on "Walking the Hospitals," an abstract of which we have published, articles on "A Visit to a Convict Prison" by Mr. A. C. Morson, and on "The Officers' Training Corps" (which has received such excellent support at Middlesex), by Mr. A. E. Johnson. A supplemental sheet gives a spirited picture of Captain J. Bland-Sutton presiding at a smoking concert of the Middlesex Company of the Corps.—— *St. Bartholomew's Hospital Gazette* (October) also contains an article on the Corps' work in camp, besides an excellent account of "The Relationship of the Consultant to the General Practitioner" by a professional Polonius, whose advice on the mutual behaviour of the two classes when the general practitioner's patients seek the consultant's advice without acquainting their usual adviser of their intentions is worthy of close attention. Other ethical subjects are discussed in the November number of the same journal.——*St. George's Hospital Gazette* (October) contains Dr. H. D. Rolleston's opening address, which is concluded in the November number.——*St. Mary's Hospital Gazette* also prints the October discourse which was delivered at that school by Principal H. A. Miers, an address upon which the editor founds his leading article. In the correspondence columns a member of the Indian Medical Service utters a measured warning concerning the changed prospects of his service and the probable limitation of civil appointments for British officers.——*St. Thomas's Hospital Gazette* (October) presents a reminder of the late alleged summer in the form of a frontispiece portrait group of its cricket team, and an account of the Inter-hospital Final which won them the cup in July. An anonymous contributor holds an interesting conversation concerning "A Ride along an Old Road"—to wit, the Kentish portion of Watling Street. We notice that the editorial staffs of these several journals have returned for the session in an unusually serious frame of mind, for we have been unable to discover the usual store of quips and cranks with which they are wont to lighten the medical reviewer's labours, such, for instance, as the neat copy of verses entitled "The Students' Guide to Osler," which appeared over the initials "S. S." in *Guy's Hospital Gazette* for Oct. 2nd.

[1] Swifthand, A New, Simple, and Rapid Method of Writing. Invented by the Right Hon. Sir Edward Clarke, K.C. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1909. Pp. 44. Price 1s.

"DR. GUILLOTIN."

To the Editor of THE LANCET.

SIR,—In stating that Dr. Guillotin "had nothing to do with" the machine that bears his name, Dr. Watkin W. Jones probably bases his statement on the fact that in the proposal made by the doctor to the Constituent Assembly on Oct. 10th, 1789, no mention was made of any instrument. According, however, to M. G. Lenotre (La guillotine, &c., d'après les documents tirés des Archives de l'État), "the orator suggested the use of the machine which has since borne his name" at a subsequent meeting on Dec. 1st of the same year. "With my machine," he said to the Assembly, "I could cut off your heads in an instant, and you would feel no pain." Concerning the origin of the idea, M. Lenotre adds that an engraving of Bocchi of 1555 has often been reproduced, and that similar machines were represented by Penez, Aldegrever, and Cranach. Several engravings of the kind are in my possession, but the earliest I have met with is a woodcut from a fifteenth century copy of the "Vita di Sancti Padri," reproduced in various editions of the "Catalogus Sanctorum." One of these, a Lyons impression, is described in my "Early Woodcut Initials," the cut in question serving to depict the mode of martyrdom of several different saints.

I am, Sir, yours faithfully,

OSCAR JENNINGS.

MORALITY IN RELATION TO HEALTH.

To the Editor of THE LANCET.

SIR,—I notice that in your reference in the last issue of THE LANCET to the paper "Morality in Relation to Health," by the Hon. Albinia Brodrick, you give the name of the publishers of the pamphlet as "The Free Press" at this address. The name should be The Nursing Press, Limited, who would be much obliged if you would kindly mention this in your next issue. Thanking you in anticipation,

I am, Sir, yours faithfully,

E. H. BLAKELEY, Secretary,
(for) The Nursing Press, Limited.

11, Adam-street, Strand, W.C., Nov. 9th, 1909.

R. G. and *Licentiate* are referred to Dr. Vincent Bell's letter on the preceding page.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

TUESDAY.

PATHOLOGICAL SECTION (Hon. Secretaries—L. S. Dudgeon, C. Bolton): at 8.30 P.M.

Ordinary Meeting.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—E. G. Graham Little, H. G. Adamson): at 5 P.M.

Dr. Arthur Whitfield: Localised Sclerodermia.
And other Cases.

FRIDAY.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretaries—Reginald Morton, G. Harrison Orton): at 8.30 P.M.

Dr. Reginald Morton: The Treatment of Nævi and other Cutaneous Lesions by Electrolysis, Cautery and Refrigeration, with a Demonstration on the Use of Solid Carbon Dioxide.

N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8.30 P.M., Dr. W. Thomas: (1) Œsophagostomiasis in Man (with specimens); (2) The Results of Experiments on Apes, Monkeys, Guinea Pigs, &c., when inoculated with Virulent Blood of Yellow Fever Cases or by the Bites of Infected Stegomyia calopus; (3) Mosay Foot of the Amazon Region (with microscopic specimens); (3) Notes on Stimson's Spirochæte Found in the Kidney of a Yellow Fever Case. (With epidiascope demonstrations.)—Paper (with specimens) will be read for Dr. J. Numa Rat, St. Kitts, W.I., on the So-called Guinea Worm of the Island of Nevis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. Galloway: Clinique (Skin). 5.15 P.M., Lecture:—Dr. J. L. Bunch: Tubercular Diseases of the Skin and their Treatment.

TUESDAY.—4 P.M., Dr. C. T. Williams: Clinique (Medical). 5.15 P.M., Lecture:—Dr. W. Griffith (Leeds): On some Cases and Specimens of Unusual Diseases of the Heart.

WEDNESDAY.—4 P.M., Mr. T. P. Legg: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. Arbuthnot Lane: Operative Treatment of Fractures.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. F. Warner: Backward Children and their Training.

FRIDAY.—4 P.M., Mr. H. L. Eason: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. R. Morton: X Ray Examination of the Digestive System (illustrated by lantern slides).

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. B. Harman: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Medicine.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Keetley: Stiff Joints.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases in the Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. S. Taylor: A Common Cold.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Mr. B. Harman: Diseases of the Eyes. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 4 P.M., Special Lecture:—Mr. R. Lake: Testing the Ear for Deafness.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 2.15 P.M., Special Lecture:—Dr. F. Taylor: Cirrhosis of the Liver.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Dr. R. Bradford: Nephritis.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. B. Giles). 4.30 P.M., Lecture:—Mr. J. H. Evans: Conditions of the Male Bladder which Produce Bleeding.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture. Dr. Ferrier.

FRIDAY.—3.30 P.M., Clinical Lecture;—Mr. L. Paton: Optic Neuritis.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

THURSDAY.—4 P.M., Lecture (Medical):—Dr. Thompson: Pyelitis in Infancy.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Dr. J. Atkinson: Nose.
FRIDAY.—3.45 P.M., Lecture:—Dr. D. McKenzie: External Ear.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W

MONDAY.—3 P.M., Clinical Demonstration: Dr. H. Campbell.
TUESDAY.—5 P.M., Clinical Demonstration:—Dr. J. Mackenzie.
WEDNESDAY.—3 P.M., Clinical Demonstration:—Dr. F. Palmer.
THURSDAY.—3 P.M., Clinical Demonstration:—Dr. T. D. Savill.
FRIDAY.—2 P.M., Clinical Demonstration:—Dr. P. Stewart. 5.30 P.M., Clinical Demonstration: Dr. E. Macnamara.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Syphilis: Treatment (Constitutional and Local in all its Forms).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (17th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (18th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (20th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 11th, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Nov. 5	30·17	E.	...	55	52	45	46	46	Foggy
,, 6	30·06	E.	...	80	55	42	42	43	Foggy
,, 7	30·16	N.	...	73	47	42	45	47	Cloudy
,, 8	30·28	N.E.	...	70	49	39	39	40	Fine
,, 9	30·28	S.W.	...	68	50	33	34	34	Foggy
,, 10	29·99	W.	...	53	48	34	40	42	Fine
,, 11	30·19	N.W.	...	65	45	38	37	39	Fine

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